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FLASHBACK:
'74 INTERNATIONAL
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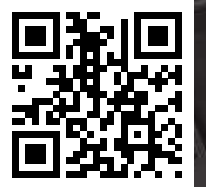
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ON THE COVER: Jody Treadway's 5.0L-powered Ranger brings the vroom that jibes with this month's power-themed cover section. Photo by Ali Mansour.



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Home Projects: Kill Me Now

Sometimes a flood is a good thing. You can get a flood of thank-you cards for saving a baby kitten out of a storm drain. You can get a flood of birthday presents. You can get a flood of vintage Jeep parts from your buddies when they segue into JKs. For stuff like that, a flood is pretty sweet. What sucks is when the flood is an actual flood—with water and damage and insurance companies and all the detritus that goes along comes with it. That's the kind of flood I've been under.

My family came home late one night to find water everywhere from a burst kitchen pipe. This being California, the water abatement company called for lead and asbestos testing before touching anything. If you give a bureaucratic mouse a cookie, he'll want to completely gut your dwelling, so in short my family has been living in a condo for four months while I deal with the home project. That in itself was an eye-opener. I mean, how often do you bring your car in for brakes and they remove your doors, windshield, and seats? And as I plod through all the insurance company red tape and contractor stuff, it occurred to me if automotive repair were anything like home repair, we'd all be riding horses.

Haggling and dealing with the insurance company aside, for starters there's the general contractor (GC). Does anything in the automotive world equate to him? Imagine somebody who lines up all your parts and installers for you and then adds about 30 percent. "Oh, you want those \$1,000 tires? I'll make a phone call. That'll be \$1,300." Or they just flat out don't listen to you. "I know you said we were going to lift your pickup,

but I had this ground-effect package left over from another job so we went ahead and installed it. Everybody is going for the low-rider look nowadays." From my personal experience with a GC you're paying for the pleasure of dealing with one person, not several. I know there are great GCs reading this who are worth their weight in gold, and to them I say, please invent a time machine and meet me at the start of my project.

Then there are the subcontractors—the dudes that actually do the work. If you're not looking over their shoulders the whole time, they'll go off the reservation. "I know you wanted that sink under the window, but the pipe we had on the truck didn't reach, so we put it in the middle of the French doors. Just don't use the French doors." I don't think any automotive repair dude would install a carburetor on the driver seat. I think technically the general contractor is the one who should be babysitting them, but half the time my GC was out golfing or buying a new fishing boat. And how often does your auto repair shop require a deposit? "We'll need about 10 percent up-front before we start. Then we'll tear your car apart and let it sit for a month or two. Then we'll ask for another 80 percent or we don't work anymore. Then right when we're almost finished, we'll expect the final 10 percent. If you're sucker enough to pay it, we'll make you chase us continually to finally come out and make it drivable again."

There are crappy auto shops, but for people who know autos inside and out, it's easy to tell good from bad. But it's scary how naked and afraid you can feel when you're dropped into a world in which you're not well versed. Many times I felt like the stereotypical old lady who brings her car in for an oil change and leaves with a new \$4,000 transmission she didn't need. This was my first go-around with a major home renovation and eventually, after reading and learning and asking and hiring and firing enough people, I did it without a GC and got an awesome crew of subs who did a great job. I just wish I had been reading home repair magazines since I was a kid the same way I've been reading *Car Craft*, *4-Wheel & Off-Road*, and *Four Wheeler*. Knowledge is power, so if you're new to off-roading, keep reading and asking questions. We won't steer you wrong.

—CHRISTIAN HAZEL

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PHOTOGRAPHY: CHRISTIAN HAZEL



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LOVE HATER HATING

Mr. Hazel, great job on your response to “Haters Gonna Hate” (Inbox, June ’15) and you were right on. Your last paragraph is great and should encourage more off-roaders to

get involved in the political process. I wonder if Bruce Roland Jr. has the intelligence to understand where the money comes from for Obamacare.

R. WELCH
VIA EMAIL

Christian, great job on your response. I stopped as soon as I read it to type this. You are on point. Keep it up.

TRAVIS SULLIVAN
TALLAHASSEE FL

Thanks for standing your ground in the June ’15 issue against the liberal from Florida. It never fails to amaze me how anyone who is a gear head or motorsports enthusiast can lean left. From land closures to self-driving cars to ridiculous mileage standards and idiotic speed limits, their politicians cannot seem to stop thinking of new ways to shut down our hobbies. It must take a special kind of blindness or denial that I will never understand. Keep up the good fight.

PAUL SCHUH
SILVER SPRING, MD

I think at this time it’d be good to give our friend, Del Albright, and the BlueRibbon Coalition (sharetrails.org) a shout out here as just one of many, many fine organizations that exist to foster good stewardship of and continued access to our public lands.

DODGE THE DODGE

We had Dodge, Ford, GM, and International pickups with six-cylinder engines in our squadron’s vehicle fleet at Malmstrom AFB, Montana. The absolute worst of the bunch and most likely to break completely down within six months and leave you stranded in the mountains or out on the prairie in a blizzard were the Dodge “trucks.” Some of the Dodges had 318s and 360s in them with TorqueFlite transmissions, and at least those powertrains would keep going while the truck



BUG OUT AXLES

I’m still not sure about the use of Rzeppa (CV joints at the wheels). They may be as good as Cardan (universal) joints under ideal conditions, but just get one stick jammed up in there to rupture the rubber boot under sandy, dusty, or muddy conditions and bye-bye joint. Also, what is missing from this analysis is how much “stronger” the CV joints are at more typical wheel angles (not 45 degrees!). Like, how about 20 or 30 degrees? And how much does it actually matter?

BERNIE KRESSNER
APPLETON, WI

There are a lot of factors that go into making those RCV shafts much stronger than the vast majority of U-joint offerings around. For starters, there’s the material composition and heat-treating, which RCV obsesses over to maintain high metallurgic quality. It’s true that debris entering the joint can cause premature failure, but the joints are greasable and those boots aren’t rubber—they’re a very strong polyurethane that any stick would have a hard time gouging. Finally, because of the elliptical path a cross-shaped U-joint must travel when an axleshaft is turned at any angle, side loads and stresses are placed on the ‘shaft ears and joint trunnion. That doesn’t happen in the CV. The only apples-to-apples comparison you can make between the CV and U-joint is with both pointed dead straight. As soon as any angle comes into play, the U-joint starts losing ground. The more angle, the more strength it gives up in comparison with the CV.

fell apart around them!

I have witnessed fist fights in the parking lot over the last two available pickups if one was a Ford or GM, and the other a Dodge. The Dodges were that bad.

By the way, in a comparison between the vehicles we had with 300ci Fords and 225ci Chryslers, the Ford would outrun the Dodges “seven ways from Sunday”! But then, to be honest, the Ford 300s we had back then were in ’77-’78 ½-ton 4x4s with four-speeds and 4.11s front and rear.

DARRELD WALTON
ARCO, ID

REPRINTS, PLEASE

I am currently helping out at a shop named CBC Offroad in Harlingen, Texas. My boss’s shop was mentioned in two of your magazines, and I have been tasked with attempting to find them: *Four Wheeler* Nov. ’04 issue and *Jp* magazine Mar. ’10 issue. I would like to have someone help me see if I can get a copy of both, either digital or print.

RAMIRO VILLARREAL
HARLINGEN, TX

For any reprints or e-prints, contact Wright’s Media at 877/652-5295. There’s a chance the ’10 story from *Jp* may be on our website—try a Google search since our website’s search engine can sometimes be kind of clunky. If it’s not up there, then Wright’s should be able to help you out. **FW**

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BY **TORI TELLEM**
EDITOR@FOURWHEELER.COM

RPM

AUTOMOTIVE NEWS

THAT'S INTERESTING

➔ Your pet peeve while driving?

Number one is probably texters, if you're anything like those surveyed for the Expedia 2015 Road Rage Report. The yearly review of what annoys driving people showed texting in the top spot, followed by tailgaters and also those hogging the left lane. In-car buzzkills included backseat drivers and shoe-taker-offers.

➔ Autotrader named the '15

Jeep Renegade one of the best vehicles for recent college grads—affordability and fuel efficiency meets tech and style.

➔ An iPhone app that fights

parking tickets for you? That would be WinIt (through Apple Store or visit appwinit.com). Apparently you take a pic of your ticket and the app runners will contest on your behalf. Submitting the ticket is free. So far, it's for NYC only.

➔ Chevy will have a bifuel '16

Silverado 3500HD Chassis Cab. It can run on CNG or gasoline.

➔ New book: How to Rebuild and

Modify Ford Flathead V-8 Engines by Mike Bishop and Vern Tardel. Get it from motorbooks.com.

➔ The Land Rover Disco Sport

will get the new Ingenium 2.0L four-banger diesel engine; at first just in Europe and South Korea. It will be called an E-capability vehicle in the automaker's vernacular.

➔ Porsche has opened its

\$100-million Experience Center and Headquarters in Atlanta. It's 27 acres and has a driver development track, human per-

formance center (yeah, we don't know either), restoration center, driving simulator lab, event space, and restaurant.

➔ Fiat Chrysler Automobiles is

making it possible for employees at Jeep, Ram, and other FCA dealerships get a no-cost college degree through Strayer University's Degrees@Work program.

➔ Toyota is the Number One

automotive brand with the Hispanic market for 10 years running.



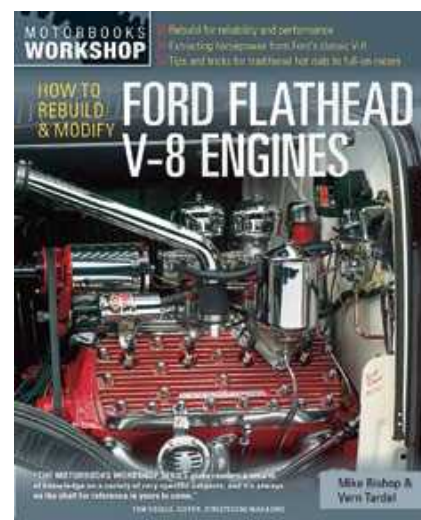
Photo: GM

➔ A 1,200-mile expedition

called Zero South is heading to the South Pole in November 2015, with two Hummers converted to run as hybrid-electric. It's part of the Drive Around the World mission. Learn more at zerosouth.com.

➔ So, Hummers continued:

gmpartscenter.net did the data and figured out that California had the most Hummer-brand vehicles in the U.S. And who exactly is searching for Hummer replacement parts? California, of course, and rounding out the Top 10 states were Texas, Florida, New York, Pennsylvania, Ohio, Massachusetts, Colorado,



Illinois, and Virginia. The Top 10 countries with Hummers (by total search volume) are the U.S., Saudi Arabia, Japan, Russia, England, Turkey, Canada, Italy, South Korea, and Taiwan.

➔ Machina Research wants you to be thinking about traffic jams in 2024. That's because smartphones and other devices will

be competing for airwaves with the navigation, safety systems such as collision detection, and infotainment features in cars, meaning the local networks they depend on could get maxed out. Data demands and surges are what need to be planned for in the future to avoid catastrophe at the level of dogs and cats living together.

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YOUR GOVERNMENT AT WORK

➤ Off-road industry meets government

bigwigs: Greg Adler, the president/CEO of Transamerica Auto Parts, and Fred Wiley, who



is the BOD Chair and president/CEO of the Off-Road Business Association, had an opportunity to meet

with House of Representatives Speaker John Boehner and House Member David Valadao of California's 21st District to talk about public land access and the off-road community. The effort was part of the steps the Off-Road Business Association continues to take toward maintaining access to public lands.

➤ A plan to tax vehicles for miles driven has failed in Missouri.

➤ Rolling coal in New Jersey is now illegal.

IS IT TRUE?

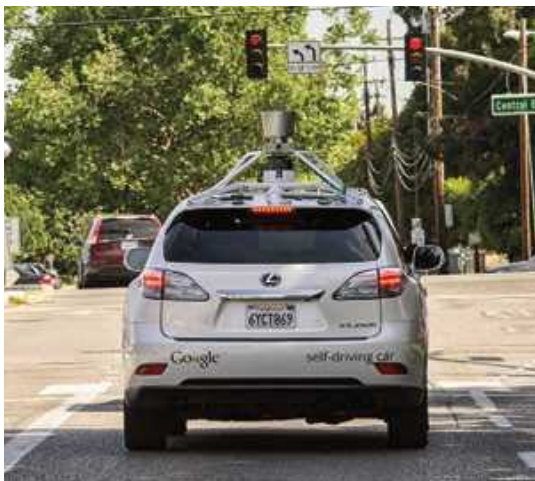


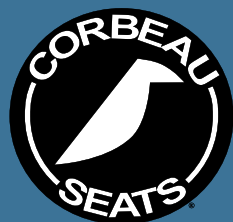
Photo: Google

- ➔ **Of the 50 self-driving vehicles going** through testing on California roads, four have crashed? Three owned by Google, and one by Delphi? Due to human error?
- ➔ **Jeep is going to build a new, way-luxo** SUV to compete with the Range Rover?
- ➔ **And Land Rover is planning an uber-**hardcore 4x4?
- ➔ **You'll see the Top Gear people on Netflix?**
- ➔ **GM is investing a billion bucks into its** Warren Tech Center, which is a National Historic Landmark site? And about 2,600 new jobs will be created with money used for expansions and construction?
- ➔ **Food trucks in NYC will go solar** powered?
- ➔ **GM has built more than 500 million** vehicles globally in its entire history? And in 2015 expects to sell more than 1,000 new vehicles per hour, 24 hours per day?



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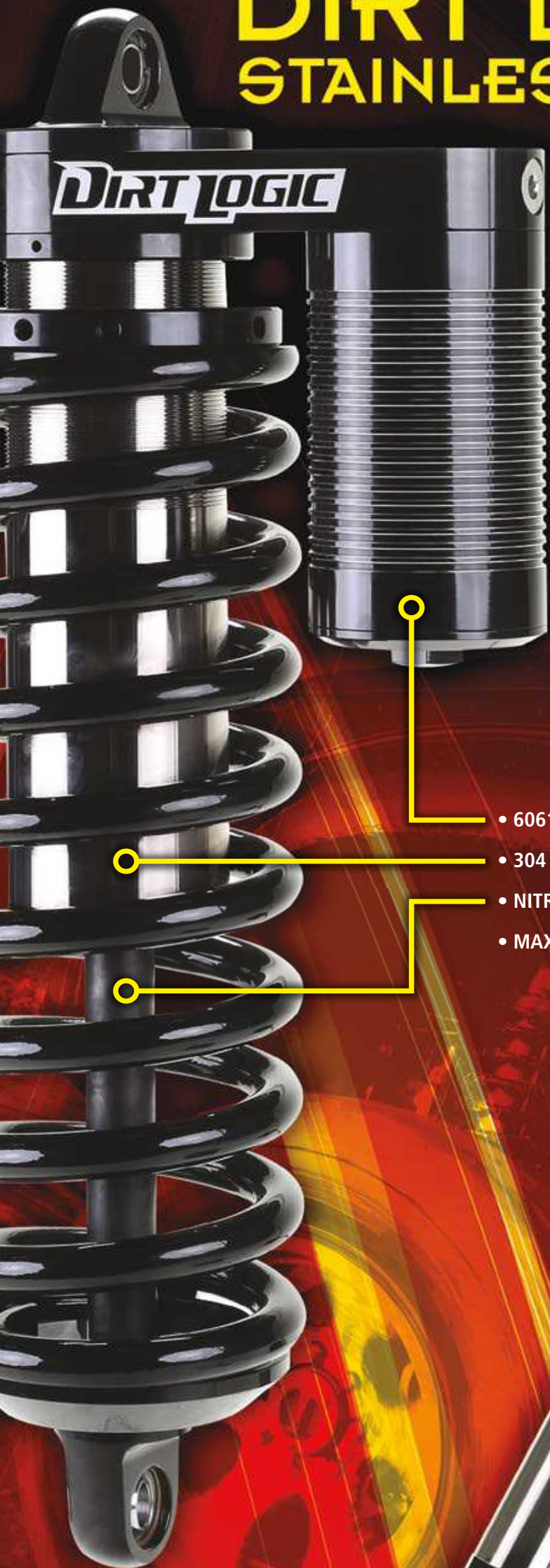
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»»» WHAT'S HAPPENING IN THE INDUSTRY

➔ **MagnaFlow** is expanding its 280,000-square-foot facility in California by another 100,000 square feet.

➔ **Check out the Truck Trend Network's** new supersite from our mothership, TEN: The Enthusiast Network. You'll find content from Diesel Power, Truck Trend, 8-Lug, RV, and other magazines within one website at truck-trend.com.

➔ **Tire Rack Street Survival** is a nonprofit driving program across the U.S. that teaches teens driving skills, like skid control and accident avoidance. Summer gets the ugly title



fourwheeler.com



Ford Hits Police Interceptor Milestone

Ford has produced 100,000 Police Interceptors at the Troy Design and Manufacturing plant. It has been able to make between 600 and 1,200 per week, and has been supplying law enforcement agencies all over the world with these vehicles since 2012. Famous Number 100,000 will end up with Chicago police.



of "100 Deadliest Days," and Tire Rack's program aims help kids get further educated. Learn more about various locations via streetsurvival.org.

➔ Head over to monroe.com, monroebrakes.com, and walkerexhaust.com for Tech Talk discussion forums. **FW**

Brake Upgrade Kits

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Car **\$145**

Stage 3 Kit

Greenstuff Trucksport pads & GD sport drilled black Geomet rotors

Truck/SUV **\$175**

Stage 4 Kit

Redstuff premium fast street pads & USR slotted black Geomet rotors

Car **\$195**

Stage 5 Kit

Yellowstuff highest friction pads & GD sport drilled black Geomet rotors

Any Vehicle **\$245**

Kit includes 100% British made ECO friendly quality high efficiency EBC brake pads fully tested and approved to meet or exceed all known standards plus premium Geomet corrosion resistant G3000 iron rotors of your pattern choice. Geomet is the NUMBER ONE brake rotor anti corrosion surface coating used by OEM builders (they use silver, we prefer black Geomet). Coating withstands severe salt spray tests for corrosion resistance.

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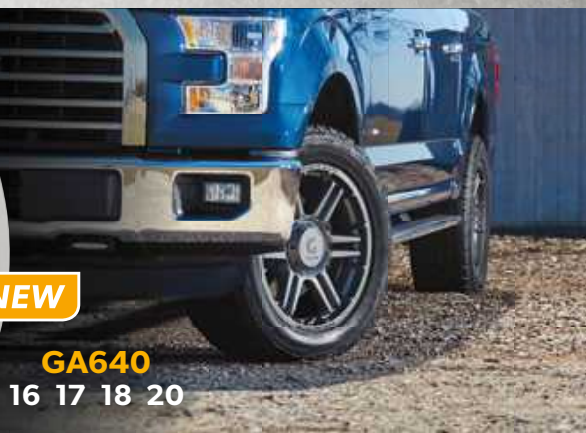
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Dynapro AT-M

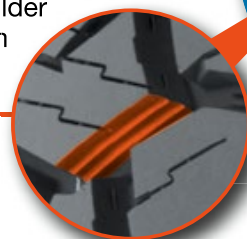
On-/Off-Road All-Terrain for Light Trucks, Vans and SUVs

Introduced as Original Equipment on the 2015 Ford F-150, Dynapro AT-M tires are now available in a range of sizes (16"-20") that offer Hankook's best all-terrain grip and acceleration both on- and off-road.

Hankook's specialty light truck compound is molded into an independent block, symmetric design with an enlarged footprint to enhance grip and acceleration while resisting uneven wear. A **wraparound tread design** gives a rugged look, increases traction in mud and snow and helps guard against cuts and bruises.

Stone ejectors in the center and shoulder grooves help prevent tire damage from stone drilling or external impacts while **tiered side grooves** and scallop grooves between the tread blocks increase the number of biting edges to enhance 3-dimensional off-road and wintertime traction.

The tire's internal structure features two high-strength steel belts reinforced with a spirally wrapped nylon cap ply to combine strength and ride quality. A polyester casing promotes ride quality and rim flange protectors help guard expensive wheels from accidental curb damage.



Shop by Vehicle at www.tirerack.com/hankook

➔ KLAU CATCH

Drake Off-Road has a solution to that annoying hood flutter your JK gets after you level out the stance. The new RockKlaw Hood Catch System replaces the factory plastic and rubber hood latches with solid cast aluminum parts that not only look good but keep your hood latched securely to the body, no matter your speed. The RockKlaw comes with stainless steel installation hardware, and you can install the optional aluminum inserts for a stylized look. **INFO:** Drake Off-Road, 855/372-5367, drakeoffroad.com



➔ 'FENDER LIGHTS

If you're running a Smittybilt Defender roof rack (we bet it'll work with other racks as well) and want to easily add off-road lighting, the Smittybilt Defender Rack LED Light Bar Mounting Kit should interest you. The kit bolts to 4, 4½, or 5-foot Defender racks and includes CNC-machined tabs to easily mount up to two LED lightbars ranging from 4 to 50 inches long. **INFO:** Smittybilt, 888/717-5797, smittybilt.com



➔ REAR GUARD

Whether you're a hardcore wheeler who needs to cover up previous damage or are just making sure you never put a wrinkle in your JK's rear sheetmetal, the GenRight Off Road full rear corner guards are what you're after. Built from ½-inch-thick steel, the corners fully cover and protect the rear of your '07-current Wrangler from rocks, trees, and other trail hazards. The factory license plate must be relocated, but GenRight makes a bracket that relocates it to a safer place on the vehicle. Available for two- or four-door Wranglers. **INFO:** GenRight Off Road, 805/584-8635, genright.com



➔ EXOTOP

Rugged Ridge now has an expedition-spec rack system that lets you bring all your toys to the trail, yet still maintains all the functionality from your soft top. The rack installs independently of the top and has a 300-pound capacity to hold just about anything you'd want to haul on an extended off-road trip. It's designed to allow the zippered windows to be removed or the soft top folded down for fresh-air wheeling, all without needing to move or modify the rack. The system is available for '07-current two- and four-door Wranglers. **INFO:** Rugged Ridge, ruggedridge.com

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AIR UP

BDS now has a 4-inch lift for '14-current Ram 1500 trucks with the factory air-ride suspension. The suspension system includes laser-cut brackets and crossmembers to properly relocate the front differential and has cast steering knuckles with heavy-duty tie-rod ends, strut spacers to retain the factory air bags and lines, an aluminum driveshaft spacer, and all the other components necessary to gain enough clearance to cleanly run 35-inch tires. Plus, it's all protected by the BDS Factory Plus Protection Plan for five years or 60,000 miles. **INFO:** BDS Suspension, 517/279-2135, bds-suspension.com

FAB BUMPER

Fab Fours has been busy in the design studio coming up with cool non-winch bumper options for modern trucks. The company's new Vengeance Series bumpers are constructed of steel, yet are built to be relatively light weight. Features include all the stuff you want, like an integrated 20-inch LED lightbar in the center and provisions to mount two 2-inch LEDs per outboard side, a two-stage matte-black powdercoat finish, and an optional prerunner-style hoop. The Vengeance Series is available for new F-150 pickups with other truck and Jeep models coming soon. **INFO:** Fab Fours, 866/385-1905, fabfours.com





HARD UNDERBELLY

The undercarriage of '07-current Wranglers are fairly well protected from the factory with the exception of the most vital bits. The engine and transmission are just hanging there waiting for a jagged rock to rip open a pan and spill vital fluid all over the trail. The OR-Fab HD Engine Skid Plate System is available for '12-current JK Wranglers and protects the vulnerable engine and transmission with a stout $\frac{3}{16}$ -inch-thick skidplate that mounts securely to the chassis and crossmember. **INFO:** OR-Fab, 928/636-7080, orfab.com **FW**



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2011-2015 2500HD & 3500

5" 2WD/4WD w/shocks.....	\$1393.74
2" Lift Kit.....	\$159.95
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2001-2010 2500HD & 3500

6" 2WD/4WD Lift w/shocks.....	\$1149.96
3" Adventure Series UCA Lift Kit.....	\$795.95
2" Lift Kit.....	\$159.95
(01-10) Heavy Duty UCA Kit.....	\$369.95
2" Torsion Keys.....	\$99.95

2007-2015 1500

4.5 & 6.5" 4WD Lift w/shocks.....	\$1295.95
4.5 & 6.5" 2WD Lift w/shocks.....	\$999.95
3.5" Adventure Series UCA Kit.....	\$619.95
(07-13) Heavy Duty UCA Kit.....	\$395.95
3.5" 2WD/4WD Combo Lift.....	\$199.95
2" Lift Kit.....	\$129.95
2" Leveling Kit.....	\$69.95
3" Body Lift.....	\$374.95
1.5" Body Lift.....	\$149.95

1999-2006 1500 4WD

6" 4WD Lift w/shocks.....	\$1299.95
3.5" Combo Lift.....	\$249.95
2" Lift Kit.....	\$149.95
2" Torsion Keys.....	\$99.95
3" Body Lift.....	\$307.95
1.5" Body Lift.....	\$159.95

1988-1998 1500 4WD

6" 4WD Lift w/shocks.....	\$1195.95
2" Lift Kit.....	\$149.95
2" Torsion Keys.....	\$99.95
3" Body Lift.....	\$176.95

1973-1987 CHEVY 1/2 & 3/4 TON PICKUP

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6" 4WD Lift w/shocks.....	\$599.95
4" 4WD Lift w/shocks.....	\$499.95

2015/2004-2012 COLORADO/CANYON

2.75" 2015 - Combo Lift Kit.....	\$205.95
3.5" 04-12 - Combo Lift Kit.....	\$349.95
1.5" Body Lift.....	\$165.95
1.5" Leveling Kit.....	\$49.95
2" 04-12 Leveling Kit.....	\$99.95
2" Lift Kit.....	\$149.95

2007-2014 SUBURBAN/TAHOE/YUKON

6.5" 4WD Lift w/shocks.....	\$1739.99
2" Leveling Kit.....	\$69.95
2" Body Lift.....	\$319.99

1992-2006 SUBURBAN/TAHOE/YUKON

6" 00-06 4WD Lift w/shocks.....	\$1679.95
2" 92-06 Torsion Bar Keys.....	\$99.95
2" 92-98 Lift Kit.....	\$149.95
3" Body Lift.....	\$199.95

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1500 4WD

6" 2013-2014 4WD w/shocks.....	\$1519.95
4" 2013-2014 4WD w/shocks.....	\$1409.95
6" 2012 4WD w/shocks.....	\$1519.95
4" 2012 4WD w/shocks.....	\$1409.95
3.5" 12-14 4WD Combo Lift.....	\$659.90
2" 12-14 Adventure Series UCA Kit.....	\$519.95
1.5" 06-14 4WD Body Lift.....	\$139.95
6" 09-11 4WD w/shocks.....	\$1699.95
4" 09-11 4WD w/shocks.....	\$1599.95
4" 09-11 4WD Combo Lift.....	\$735.94
2.5" 09-11 Adventure Series UCA Kit.....	\$595.99
06-11 Heavy Duty UCA Kit.....	\$430.95
6" 06-08 4WD w/shocks.....	\$1295.95
4" 06-08 4WD w/shocks.....	\$1249.95
4" 06-08 4WD Combo Lift.....	\$761.94
2.5" 06-08 Adventure Series UCA Kit.....	\$595.99
3" 06-08 4WD Body Lift.....	\$355.95
5" 94-01 4WD w/shocks.....	\$839.95
2.5" 94-01 Lift Kit.....	\$179.95
2.5" 94-01 Leveling Kit.....	\$99.95
5" 02-05 4WD w/shocks.....	\$1195.95
2" 02-05 Lift Kit.....	\$149.95
2" 02-05 Leveling Kit.....	\$99.95

2500/3500 4WD

6.5" 14-15 2500 Radius Arm Kit.....	\$1345.99
6.5" 14-15 2500 Lift Kit.....	\$1149.99
5.5" 14-15 2500 Radius Arm Kit.....	\$1320.87
5.5" 14-15 2500 Lift Kit.....	\$1124.87
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4.5" 14-15 2500 Lift Kit.....	\$975.95
4" 14-15 2500 Radius Arm Kit.....	\$1159.95
4" 14-15 2500 Lift Kit.....	\$975.95
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4" 13-14 3500 Radius Arm Kit.....	\$999.95
4" 13-14 3500 Lift Kit.....	\$815.95
2" 13-14 3500 Leveling Kit.....	\$99.95
8" 03-13 w/shocks.....	\$1329.95
6" 03-12 w/shocks.....	\$1105.95
5" 09-13 w/shocks.....	\$912.81
5" 03-09 w/shocks.....	\$770.95
5" 94-02 w/shocks.....	\$839.95
2.5" 94-12 Leveling Kit.....	\$99.95

TOYOTA

5" 07-14 Tundra w/shocks.....	\$1299.94
3" 07-14 Tundra Leveling Kit.....	\$99.95
3" 07-14 Tundra Lift Kit.....	\$169.95
6" 05-12 Tacoma Suspension Lift.....	\$1249.95
4" 05-12 Tacoma Suspension Lift.....	\$1195.95
2.5" 05-11 Tacoma Leveling Kit.....	\$99.95
2.5" 07-11 FJ Cruiser Lift Kit.....	\$229.95

FORD

05-15 F250 & F350

6" Radius Arm Kit w/shocks.....	\$1279.95
4" Radius Arm Kit w/shocks.....	\$1053.48
4" 4WD w/shocks.....	\$799.96
2" Body Lit (11-15).....	\$399.95
2" Leveling Kit.....	\$99.99
1" Budget Boost.....	\$69.99

99-04 F250 & F350

6" 4WD Lift w/shocks.....	\$995.95
4" 4WD Lift w/shocks.....	\$809.95
2.5" Leveling Kit.....	\$295.95
1" Front Shackles.....	\$74.95
3" Body Lift (99-03).....	\$334.95

1997-2014 F-150

6" 2014 4WD w/shocks.....	\$1299.95
6" 2014 2WD w/shocks.....	\$1195.95
4" 2014 4WD w/shocks.....	\$1299.95
2" 2014 4WD w/shocks.....	\$169.95
2" 09-14 Leveling Kit.....	\$99.95
6" 09-13 4WD w/shocks.....	\$1549.95
6" 09-13 2WD w/shocks.....	\$1399.95
2" 09-13 Lift Kit.....	\$169.95
6" 04-08 4WD w/shocks.....	\$1399.95
4" 04-08 4WD w/shocks.....	\$1299.95
2" 04-08 4WD Lift Kit.....	\$169.95
2" 04-08 4WD Leveling Kit.....	\$81.95
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2" Body Lift.....	\$119.99

JEEP 84-01 XJ LIFTS

2" Spacer Lift w/ shocks.....	\$251.46
3" Coil Lift w/ shocks.....	\$290.66
4.5" Coil Lift w/ shocks.....	\$495.95
3" Coil/Rear Leaf w/shocks.....	\$510.94
4.5" Coil/Rear Leaf w/shocks.....	\$749.94

JEEP 97-06 TJ LIFTS

2" Spacer Lift w/ shocks.....	\$229.75
3" Coil Lift w/ shocks.....	\$459.99
4" Coil Lift w/ shocks.....	\$529.99
4.25" Combo Lift.....	\$529.99
1.25" Body Lift.....	\$94.95
2" Body Lift.....	\$108.75
3" Body Lift.....	\$114.22

JEEP YJ & CJ LIFTS

1.25" 87-95 YJ Body Lift.....	\$89.95
4" 87-95 YJ Lift w/shocks.....	\$625.95
2" 87-95 YJ Lift w/shocks.....	\$499.95
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3" 87-95 YJ Body Lift.....	\$95.99
2" 72-86 CJ Body Lift.....	\$89.74
3" 72-86 CJ Body Lift.....	\$94.06

JEEP GRAND CHEROKEE LIFTS

2" 93-98 ZJ Spacer Lift w/shocks.....	\$218.62
4" 93-98 ZJ Coil Lift w/ shocks.....	\$639.95
4" 99-04 WJ Coil Lift w/ shocks.....	\$699.95
4" 05-07 WK Lift.....	\$1499.95

JEEP COMANCHE MJ

4.5" 86-92 Lift Kit.....	\$549.95
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Few images of the Rebel grille make it look as good as it actually does in person. The multi-piece bumper offers more ground clearance and easy replacement should it get damaged. Can we get some better tow points please?



2015 RAM REBEL

Ramming into an off-road trim package

By **John Cappa** editor@fourwheeler.com Photography: Courtesy of Ram Truck

IF YOU'VE BEEN EYEBALLING AND COMPARING the ½-ton off-road trim packages, you can now add the '15 Ram 1500 Rebel to the list of currently offered 4x4-centric pickup trucks, which includes the Chevy Sil-

verado Z71, Ford F-150 FX4, GMC Sierra All-Terrain, Nissan Titan PRO-4X, and Toyota Tundra TRD Pro. Each of these trucks has admirable 4x4 qualities. For several years, the most off-roady package offered by Ram was the Outdoorsman, so we were excited to see an even more dirt-worthy trim come down the pipeline when Ram introduced the Rebel in January of this year. Obviously, we jumped at the chance to take a closer look at and get behind the wheel of a pre-production Ram Rebel both on- and off-road in sand, gravel, mud, and snow to see how it measures up to the rest of the playing field.

In the halls of Fiat Chrysler Automobiles, the '15 Ram 1500 Rebel is considered 1 of 10 different Ram truck models. To the average consumer, it's simply a trim package. At first glance you'll quickly notice that the new Ram rolls on wide mud and snow-rated 33-inch-tall tires. The Rebel-specific grille, bumper, hood, and badging are also hard to miss. We have to admit, the front end looks a lot cooler in person than it did in the initial intro images. The photos didn't do it any favors and accentuated some unflattering body lines. Many people likened its looks to everything from a handlebar mustache to that of Star Wars alien character Nien Nunb. The multi-piece front bumper is actually an admirable feature if you use the truck in the dirt. It provides more ground clearance than the standard Ram 1500 bumper/air dam, and each section is remov-

G The Rebel features a specific tailgate with extra-large Ram badging. We like that the dual exhaust is tucked in tight and frenched into the rear bumper.

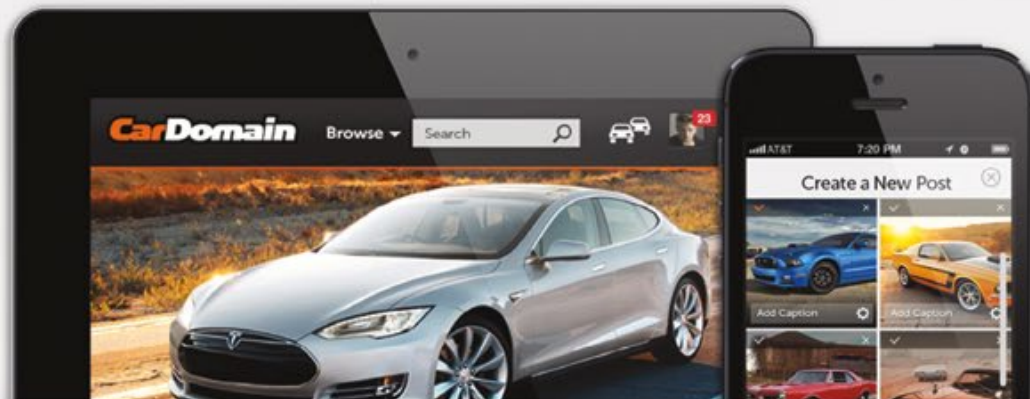


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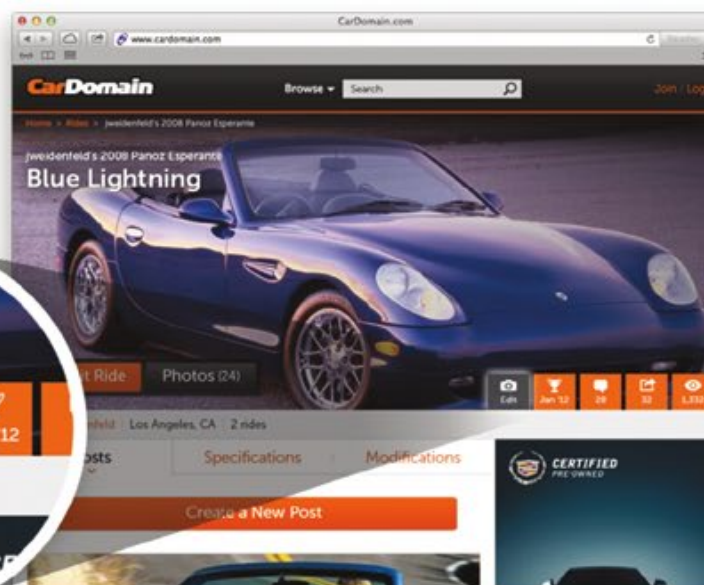


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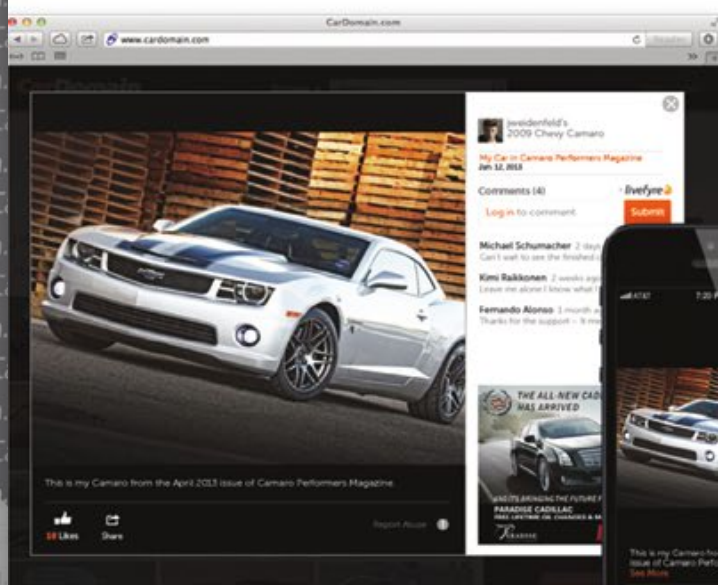
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able so it can be easily replaced if damaged. The front recovery points are also Rebel-specific and slightly less desirable than the Ram 1500 4x4 components. The Rebel hooks are a closed-loop design and don't offer a lot of room for a towstrap. You would likely have to use a clevis, which would surely damage the hook opening in the bumper. We'd prefer either an open hook, like on the Ram 1500 4x4, or something similar to the hook/loop found on the Ram 2500 4x4 and Power Wagon.

Moving to the rear, there will be no mistake about what truck you are driving, thanks to the oversized cartoonish Ram logo on the tailgate. The dual exhaust frenched into the

rear bumper acknowledges that extra thought went into looks and performance. The shiny polished tips and extra ground clearance are appreciated on our end.

The interior of the Rebel is similar to the Sport trim level in its lavishness. Inside you'll find Rebel-specific seating and a black headliner that gives the truck a more menacing, high-end feel. Attractive, high-quality Radar Red accents and stitching are sprinkled throughout. We love the extra seat bolstering that helps keep you in place when bouncing around off-road or carving canyon corners aggressively. However, the Toyo Open Country tire-tread-embossed seat material is a little too

gimmicky for our personal tastes.

Tire clearance for the 285/70R17 Toyo Open Country AT II tires comes from a 1-inch lift via the Ram's air suspension front and rear. The Rebel is not available with steel coil springs. Damping duties are handled by a quartet of Bilstein shocks. Additional tire clearance is provided by the Rebel-specific front bumper, which offers a slightly larger wheel opening than the standard Ram 1500 front bumper. We really like the 17x8-inch Rebel wheels. We're especially happy that Ram refrained from fitting 20s on an off-road-centric truck. The 17-inch wheels offer more tire sidewall for improved traction and a better



➤ Even the gauge cluster is Rebel-specific. There are Radar Red accents and a Rebel logo that pops up when you start the vehicle.



➤ Extra bolstering combined with Sedoso fabric inserts embossed with the Toyo tire tread pattern keep your butt well planted in the Rebel seats. The embossed tire tread in the fabric is a little much for our tastes.

➤ The interior of all Ram Rebel trucks is trimmed in Radar Red. A Ram 1500 Sport trim package is similar in luxury amenities.



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ride off-road, especially when aired down. The black-painted wheels have a machined aluminum outside surface. This is the area most likely to come in contact with trail debris, so it makes the wheels less likely to receive unsightly paint chips and dings.

Interestingly, the Rebel can be had in 4x2 and a 4x4 models. A 395hp 5.7L Hemi V-8 mated to a TorqueFlite eight-speed ZF transmission is available in both and backed with either 3.92 or 3.21 ratio axle gears. If you would rather have a V-6 Rebel, you can get the 305hp 3.6L Pentastar engine backed with a TorqueFlite eight-speed transmission and 3.92 axle gears. However, the Pentastar-powered Rebel is only available in a 4x4 configuration. No EcoDiesel version of the Rebel is currently available and likely won't be for some time, if ever. The 3.0L EcoDiesel already makes up nearly 20 percent of Ram 1500 orders, so there is little incentive to allocate additional diesel engines to the nameplate. We'd



“WE REALLY LIKE THE 17x8-INCH REBEL WHEELS. WE'RE ESPECIALLY HAPPY THAT RAM REFRAINED FROM FITTING 20s ON AN OFF-ROAD-CENTRIC TRUCK.”

love to see an EcoDiesel Rebel, but we also understand the reasoning.

The Ram Rebel rides, drives, and performs on- and off-road very similar to our 2013 Four Wheeler Pickup Truck of the Year winner, the Ram 1500 Outdoorsman. Both 4x4s have air suspension, a 5.7L Hemi V-8, TorqueFlite eight-speed transmission, and 3.92 axle gears. If you raise the suspension to the highest setting (Off-Road 2 mode for standard air-suspension Ram truck) for more ground clearance on either 4x4, the ride becomes a bit firmer. The normal ride-height of the Rebel suspension is essentially the Off-Road 1 setting of a standard Ram 1500 with air suspension. The Rebel will lower a total of about 3 inches from normal ride height when switched to entry/exit mode. The Off Road setting of the Rebel is about 1 inch over ride height. The suspension reverts to normal ride height if speed exceeds 25 mph. For the smoothest ride, we'd recommend only using the Off Road setting when extra ground clearance is needed. For improved fuel economy, the Rebel will



Under the hood of the 4x4 Ram Rebel you can opt for a 305hp 3.6L Pentastar V-6 with 269 lb-ft of torque or go for the 5.7L Hemi V-8 with 395 hp and 410 lb-ft of torque. The TorqueFlite eight-speed automatic is the only transmission available.

Room for the 33-inch tires is created in part by the 1-inch lift of the air suspension. A Bilstein mono-tube shock can be found at each corner. Standard skidplates protect the steering, front axle, transfer case, and fuel tank. A slightly slower steering ratio was added to take better control of the larger tires and lifted suspension.



In the rear you'll find a standard link-style air suspension similar to what is optional under a Ram 1500. The suspension can be lowered a total of three inches for easier passenger entry and exit and loading and unloading of the bed.

automatically go into aero mode and lower about ½-inch if a speed of 60 mph is reached for more than 20 seconds or instantaneously if the vehicle hits 66 mph. It's been our experience that this can be a ground-clearance hindrance if you enjoy blasting down desert two-tracks. Fortunately, you'll find standard skidplates under the fuel tank, transfer case, front axle, and steering assembly. An open differential is standard on the Rebel, but an optional clutch-pack limited slip is available. We'd like to see the Ram 1500 get an optional selectable locker across the board, even for two-wheel-drive models but especially on a truck like the Rebel.

The Rebel has great compression braking off-road when you manually shift the transmission into First gear low range and slightly ride the brake. It's difficult to drive aggres-

sively and manually flip through the transmission gears via the buttons on the steering wheel. You're probably better off picking a gear or letting the transmission do all the work and shift itself, especially if the kind of driving you are doing involves a lot of steering wheel juggling.

The tires of our tester were aired down to 40 psi for the off-road sections. This improved flotation and traction on the loose gravel and cinder surfaces, but we would probably go a little lower if it were our call. The 3.92 gears are a no-brainer for us. The penalty in fuel economy is likely so minimal that it's not worth losing the extra oomph, especially if you plan on towing a trailer with your Rebel.

Ultimately, the '15 Ram 1500 Rebel is not an extreme off-road competitor for the Power Wagon or Ford Raptor (which is not even available for '15 or '16). The Rebel trim is more of a unique affordable off-road appearance package with features that will make it perform off-road better than a base-model Ram 1500. The Rebel will be available at the end of the second quarter of 2015 in five colors, including Granite Crystal Metallic, Bright Silver Metallic, Flame Red, Bright White, and Brilliant Black. Both monotone and two-tone paint options will be offered. Pricing starts at \$43,985 for the Hemi-equipped 4x2. The Pentastar 4x4 model rings in at \$45,915, and the Hemi 4x4 Rebel comes in at \$47,565. Keep your eyes out for a more in-depth on- and off-road review when we get our hands on a Ram Rebel for our week-long 2016 Four Wheeler Pickup Truck of the Year testing. **FW**

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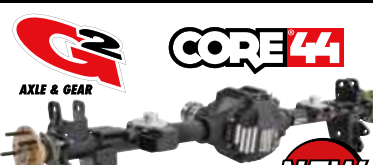
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285/70R17	BFG99728	\$236.99	275/65R20	BFG17764	\$274.99
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35X12.50R17	BFG50022	\$265.99			

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All Terrain T/A KO

Tire Size	Part#	Price	Tire Size	Part#	Price
215/75R15	BFG02821	\$129.99	275/70R16	BFG94223	\$221.99
235/75R15	BFG29274	\$139.99	295/75R16	BFG92042	\$231.99
31/10.50R15	BFG03119	\$163.99	37/12.50R17	BFG12987	\$319.99
33/10.50R15	BFG63540	\$164.99	265/70R17	BFG12665	\$208.99
33/12.50R15	BFG09681	\$173.99	305/65R17	BFG00875	\$276.99
35/12.50R15	BFG49774	\$188.99	265/65R18	BFG05260	\$245.99
225/70R16	BFG02204	\$191.99	285/65R18	BFG93857	\$247.99
235/70R16	BFG72870	\$183.99	305/65R18	BFG35237	\$311.99
235/85R16	BFG75445	\$163.99	305/55R20	BFG30836	\$366.99
245/70R16	BFG03219	\$186.99	285/55R20	BFG30710	\$379.99
245/75R16	BFG15477	\$165.99	325/60R20	BFG38941	\$468.99
255/70R16	BFG78762	\$202.99	325/50R22	BFG35959	\$638.99

* Prices subject to change without notice.
See website for current pricing and specials. *



Mud Terrain KM2

Tire Size	Part#	Price	Tire Size	Part#	Price
235/75R15	BFG05926	\$183.99	LT305/65R17/E	BFG34424	\$319.99
30/9.50R15	BFG15976	\$175.99	35/12.50R17/D	BFG38371	\$324.99
31/10.50R15	BFG98952	\$200.99	37/12.50R17/D	BFG25419	\$407.99
32/11.50R15	BFG11079	\$203.99	LT305/60R18/E	BFG31489	\$368.99
33/12.50R15	BFG37047	\$204.99	35/12.50R18/D	BFG28459	\$421.99
35/12.50R15	BFG53290	\$216.99	37/12.50R18/D	BFG97218	\$550.99
235/70R16	BFG72870	\$183.99	LT305/55R20/E	BFG20881	\$531.99
235/85R16	BFG40661	CALL	LT325/60R20/D	BFG34143	\$584.99
245/75R16	BFG41771	\$238.99	37/12.50R20/D	BFG39143	\$679.99
255/85R16	BFG04222	\$205.99	42/14.50R20/C	BFG96757	\$846.99
265/75R16	BFG19683	\$223.99	LT335/55R22/D	BFG10687	\$681.99
LT315/75R16/D	BFG24970	\$313.99	37/12.50R20/D	BFG39143	\$679.99
LTS245/70R17/E	BFG13859	\$241.99	42/14.50R20/C	BFG96757	\$846.99
LTS285/70R17/D	BFG37037	\$265.99	LT335/55R22/D	BFG10687	\$681.99

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Power and mileage mods you can do in a day

By **Christian Hazel** christian.hazel@fourwheeler.com Photography: Christian Hazel

ENGINE POWER, PERFORMANCE, AND MILEAGE ARE THINGS YOU NEVER TURN DOWN MORE OF, BUT NOT everybody's 4x4 is a third or fourth vehicle that hangs around only to be used as a toy or plaything. For many it's the way you get to work, drop the kids at school, or return your VHS tape at Blockbuster. For those people, any modification needs to be done, at the very least, over a weekend and preferably with no extra runs to the parts store (unless it's within walking or biking distance). Here are some power mods we've made in the past that actually get you some return on your investment with a noticeable seat-of-the-pants increase in performance. As an added bonus, many will eke out a bit better fuel economy in the process because they make your engine more efficient.

AFTERNOON



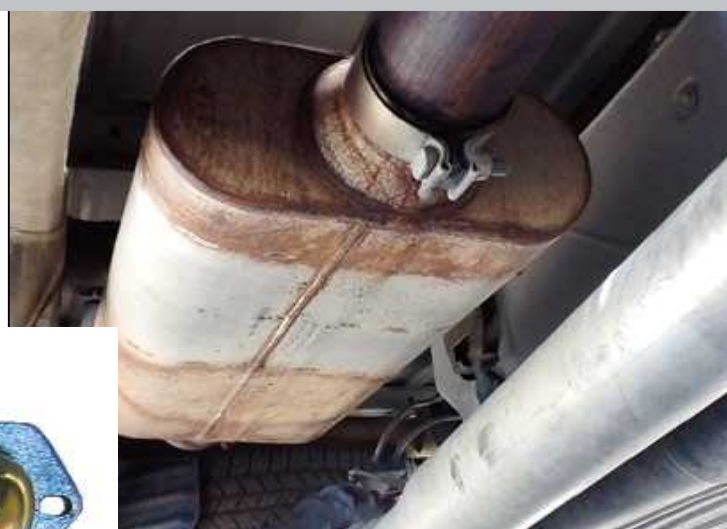
Cold-Air Intake

The paper panel air filter that came in your vehicle is great for trapping particles, but they don't really allow huge airflow. And the plastic ducting can be rife with harsh bends, baffles, and chambers designed more for low sound levels than maximum airflow. Adding a cold-air intake such as this unit for a '12 Chevy Silverado with the 6.0L Vortex Max engine can add up to 2 mpg and provides a noticeable seat-of-the-pants improvement in power from off-idle all the way to redline, thanks to a much better flowing filter element and free-flowing ducting. As a bonus, most of these systems add very little, if any, noise. **INFO:** Airaid, 800/498-6951, airaid.com



Headers

Adding headers can be a headache, but if you go with a quality stainless or heavy-gauge mild-steel application from a reputable manufacturer, they can offer a great improvement in performance and durability compared with cast-iron. Shown is a pair of Rusty's Off Road stainless headers for a JK Wrangler 3.8L engine. These serve as a good example of what to consider in your header purchase: thick flanges that will resist warping, heat shielding where necessary (to keep plug wires and ignition components from burning), and quality welds with equal tube lengths for consistent cylinder scavenging. That said, not every application will benefit from headers and sometimes a good set of heavy cast manifolds are quieter and easier to deal with. **INFO:** Rusty's Off Road, 256/442-0607, rustysoffroad.com



After-Cat Exhaust

Like the air intake, the factory exhaust in your vehicle is designed primarily with low sound levels and ease of manufacturing in mind. Performance doesn't really enter the factory equation. Systems like this Flowmaster Hush-System we installed on a '12 Chevy Silverado 2500 at the back end of the system and improves exhaust flow, help the cylinders scavenge the burned air/fuel mixture, it just sounds wickedly awesome. Empty cylinders

on the exhaust stroke means more room for the fresh air/fuel mixture to enter the cylinder and, in turn, more power. The Flowmaster system is constructed of durable aluminized steel for an affordable price, nice mandrel bends and a fully welded muffler for performance, and applications to fit nearly any vehicle. **INFO:** Flowmaster Mufflers, 707/544-4761, flowmastermufflers.com

UPGRADES

Carburetor Swap

If you have a two-barrel carburetor, you can often use a two-to-four-barrel adapter like those from Trans-Dapt Performance to mate a square- or spread-bore four-barrel to your two-barrel manifold. It's not ideal, but you'll still be able to enjoy some of the benefits of a four-barrel without swapping intakes. We love junkyard Q-Jets, but they're getting scarce. One company still manufacturing excellent off-road carburetors is Holley, with its Truck Avenger line of off-road-bred carburetors. Available in 470, 670, and 770 cfm applications, the Truck Avenger covers everything from six-cylinders all the way up to big-block applications. Just don't go too big. Most small-block engines will respond well with a 670 cfm unit. Save the 770 cfm job for the big-blocks and really nasty small-blocks.

INFO: Holley, 866/464-6553, holley.com; Trans-Dapt Performance, 562/921-0404, tdperformance.com



Intake Manifold

Upgrading from your cast-iron log of a factory intake manifold to a high-performance aluminum intake manifold can offer a night-and-day difference in performance. Many manufacturers offer many types for a variety of applications, but in our minds, none successfully cover emissions and non-emissions applications as well as Edelbrock. The manifolds are made right here in the USA and, in our opinion, are of the highest quality and offer stellar performance. Several different varieties are available, but you simply can't go wrong with either a Performer or (for slightly more performance-oriented builds) a Performer RPM, no matter what you're building. **INFO:** Edelbrock, 310/781-2222, edelbrock.com



Ignition Coil/Plug Gap

Most modern vehicles feature either coil-on-plug ignition systems in which the coil is (duh) right on the plug or attached to the valve cover and connected to the plug via a short wire. In any case, Performance Distributors has developed a super-high-output coil for these applications it calls its Sultans of Spark. The high-output coils allow the plugs to be opened up to 0.065 inch for a complete burn of the air/fuel charge, no matter what load or rpm level. The plug wires are super-low resistance beauties with durable silicone insulation and a high-temp braided heat shield. They're simply the best. We've been testing this system in a '12 Chevy Silverado with a 6.0L Vortec Max engine, and after 20,000 miles we've seen a consistent mileage increase and bump in power.

INFO: Performance Distributors, 901/396-5782, performancedistributors.com



Distributor Upgrade/Ignition Timing

If you've got an old-school distributor that relies on weights and springs to provide the advance curve, there's most likely a ton of performance hiding right under your distributor cap. For starters, if you don't know your base timing, you can use a vacuum gauge and advance the distributor with the engine idling and vacuum lines plugged until you measure your highest vacuum reading. Then, go into the advance curve. Kits are available for many factory and aftermarket distributors to tailor your timing curve, but for us, we're always amazed at the ability of Performance Distributors to get the curve of its D.U.I. HEI distributors just about perfect with only a few questions over the phone. Even in back-to-back tests against a professionally recurved distributor on the dyno, the Performance Distributors unit out-performs all others we've tested to date. **INFO:** Performance Distributors, 901/396-5782, performancedistributors.com



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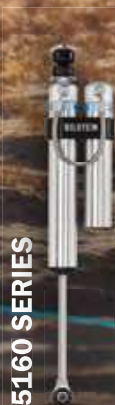
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Fuel Injection

For off-road performance that translates onto the street, it's hard to beat a fuel-injection conversion system. There are a lot of fancy MPI systems out there, but for all our experience, one of the simplest and best working units we've ever had was the self-learning Powerjection III system by Professional Products. We simply installed the system in place of our four-barrel carb (we used Professional Products' optional fuel pump and line kit), answered a few quick questions on our laptop, and then drove the vehicle. It measures variables from the O2 and other sensors to quickly and accurately tune the system for your particular vehicle. It's that simple. **INFO:** Professional Products, 323/306-5067, professional-products.com



Tuner/Programmer

It's especially true if you're driving a modern diesel pickup but even gasoline-powered vehicles can benefit greatly from a good aftermarket tuner/programmer to increase power, mileage, change shift points, diagnose trouble codes, and (especially nowadays) provide a dashboard-gauge view of virtually any factory sensor in the vehicle. We've been running a DiabloSport Trinity T1000 tuner in a '12 Chevy Silverado 2500. We used the unit to raise the transmission shift points up to 6,000 rpm, employ the gauge dash when underway to monitor things like tranny temp while towing, oil pressure, and water temp, as well use any of many other functions it offers like data logging, DTC reader, and more. In Performance mode it makes the truck an absolute beast, and in economy mode, we can eke out up to 3 mpg more from our rig in normal driving and 2 mph when towing a 12,000-pound trailer. That's performance that pays for itself! **INFO:** DiabloSport, 561/908-0041, diabolosport.com



Throttle Body

In modern fuel-injected engines, the throttle body can be a potential choke point in the intake charge. Taking a Jeep 4.0L as an example, the factory throttle body (left) necks down to 60 mm. Many aftermarket companies, like BBK, offer throttle bodies without the taper with a larger diameter opening. Going too large on the throttle body can actually reduce the intake charge velocity and make the engine lazy at lower rpms, so most are in the neighborhood of 62mm, which is plenty for a factory Jeep 4.0L with a few accessories like a header, cold-air intake, and after-cat exhaust. **INFO:** BBK Performance, 951/296-1771, bbkperformance.com



Nitrous Oxide

It may not be right for every application, and you sure aren't gonna get better mileage with it. But one of the fastest and easiest ways to add oodles of power to any engine is with a nitrous oxide system. We've used many, and the Powershot system from NOS was simple and brutally effective. A wet-jet system, the Powershot uses a nitrous and fuel jet upstream of the throttle body in a fuel-injected vehicle to add the appropriate levels fuel and nitrous to make around 90 hp on a six-cylinder and 125 hp on an eight-cylinder. Of course, you can change jetting for more or less power as desired. **INFO:** Holley, 866/464-6553, holley.com **FW**



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3.5"	Complete Kit w/Upper Arms	\$499.95
5/6/7"	Complete Kit w/N2 Rear Shocks	\$1199.95
➤ 2007-2013 1500 PU / SUV 4WD		
2"	Front Leveling Strut Spacers	\$64.95
3.5"	Complete Kit w/Upper Arms	\$479.95
4.75"	Combo Kit-3.5" Susp/1.25" Body	\$549.95
5"	Complete Kit w/N2 Rear Shocks	\$999.95
6"	Complete Kit w/N2 Rear Shocks	\$999.95
7.5"	Complete Kit w/N2 Rear Shocks	\$999.95
➤ 2011-2015 2500HD PU 4WD		
1.5-2"	Front Leveling Torsion Keys	\$119.95
5" / 7.5"	Complete Kit w/2.0 Shocks	\$1399.95

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➤ 2009-2015 1500 Ram PU 4WD		
2.5"	Front Leveling Kit	\$129.95
3.75"	Combo Kit (2.5" Susp/1.25" Body)*	\$249.95
4"	Complete Kit w/2.2 Rear Shocks	\$1249.95
6"	Complete Kit w/2.2 Rear Shocks	\$1399.95
➤ 2014-2015 2500 Ram PU 4WD		
2.5"	Front Leveling Coil Spacers	\$99.95
5"	Complete Kit w/Radius Arms	\$999.95
➤ 2003-2013 2500/2003-2012 3500 Ram 4WD		
2"	Front Leveling Coils	\$179.95
2.5"	Front Leveling Spacers	\$99.95
5"	Complete Kit w/2.0 Shocks	\$699.95
5"	X-Series Kit w/Adj Arms & Shocks	\$899.95
5"	Long Arm Kit w/2.0 Shocks	\$1299.95

FORD



➤ 2015 F-150 4WD		
2.5"	Front Leveling Strut Ext NEW!	\$99.95
4"	Complete Kit NEW!	\$1299.95
5"	Complete Kit NEW!	\$1299.95
6"	Complete Kit NEW!	\$1299.95
➤ 2009-2014 F-150 4WD		
2.5"	Front Leveling Strut Extensions	\$99.95
4"	Complete Kit NEW LOW PRICE!	\$999.95
6"	Complete Kit NEW LOW PRICE!	\$999.95
➤ 2005-2015 F-250 Super Duty 4WD		
3"	Complete Kit w/Front Spacers	\$379.95
3"	Series II Kit w/Coil springs	\$499.95
4.5"	Complete Kit w/2.0 Shocks	\$649.95
6"	Radius Arm Drop Kit w/Shocks	\$799.95
6"	4-Link Radius Arm Kit w/Shocks	\$1299.95

*2009-2011 models ONLY!

JEEP JK



2.5"	Coil Spacer Kit	\$139.95
2.5"	Coils w/shock relocation	\$249.95
2.5"	Coils w/Perf. 2.2 shocks	\$349.95 - \$329.95
3.25"	Coils w/Perf. 2.2 shocks	\$399.95
3.5"	Complete Kit w/N2.0	\$499.95
3.75"	2.5" susp. / 1.25" body (Auto)	\$419.95
4"	Complete Kit w/shocks	\$575.95 - \$499.95
4"	X-series Kit	\$1249.95 - \$1199.95
6"	X-series Kit	\$1339.95
4"/6"	Long Arm Upgrade Kit*	\$1199.95
4"	Long Arm Suspension*	\$1999.95
6"	Long Arm Suspension*	\$2099.95

JEEP TJ



0.75"	Leveling Spacers	\$39.95
1.5"	Coil Spacer Kit	\$199.95
2"	Coil Spacer Kit	\$129.95 - \$109.95
2.5"	X-series Kit w/X-Flex arms	\$949.95
3.25"	Coils w/N2.0 shocks	\$399.95 - \$369.95
3.75"	2" susp. / 1.25" body	\$429.95 - \$389.95
4"	Complete Kit w/N2.0	\$549.95 - \$499.95
4"	X-series Kit w/X-Flex arms	\$999.95
6"	X-series Kit w/X-Flex arms	\$1049.95
2.5"	Long Arm Suspension	\$1499.95
4"	Long Arm Suspension	\$1599.95
6"	Long Arm Suspension	\$1649.95

JEEP XJ



1.5"	Coil Spacer Kit	\$249.95
3"	Coils w/ N2.0 Shocks	\$255.95
3"	Series II Kit w/N2.0 Shocks	\$345.95
4.5"	Complete Kit w/N2.0	\$499.95 - \$459.95
4.5"	X-series Kit w/X-Flex arms-N2.0*	\$829.95
6.5"	X-series Kit w/X-Flex arms-N2.0*	\$899.95
4.5"	Long Arm Suspension	\$1299.95
4.5"	Long Arm Suspension*	\$1399.95
6.5"	Long Arm Suspension*	\$1449.95

*Includes new rear leaf springs

*2012-2015 models add \$190 to long arm kit cost

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➤ 1999-2004 WJ Grand Cherokee		
2"	Coil Spacer Kit w/N2.0 Shocks	\$249.95
4"	Complete Kit w/Perf 2.2 Shocks	\$649.95
4"	X-series w/X-Flex Arms	\$799.95 - \$749.95
4"	Long Arm Suspension	\$1499.95
➤ 1993-1998 ZJ Grand Cherokee		
1.5"	Coil Spacer Kit w/Shocks	\$205.95
3.5"	Complete Kit w/N2.0 Shocks	\$399.95
4"	Series II Kit w/arms & Shocks	\$599.95
4"	X-series Kit w/X-Flex arms - N2.0	\$779.95
4"	Long Arm Suspension	\$1499.95

NISSAN



➤ 2004-2015 Titan 4WD		
2"	Front Leveling Strut Extensions	\$99.95
3"	Front Leveling Kit w/Upper Arms	\$349.95
4"	Complete Kit NEW LOW PRICE!	\$999.95
6"	Complete Kit NEW LOW PRICE!	\$999.95
➤ 2005-2014 Frontier / Xterra 4WD		
1.5"	Rear Lift Shackles	\$64.95
2.5"	Front Leveling Strut Extensions	\$99.95
2.5"	Complete Kit	\$149.95
➤ 1986.5-1997 D21 Hardbody PU 4WD		
1.5-2"	Complete Kit w/Upper Arms	\$339.95

TOYOTA



➤ 2007-2015 Tundra 4WD		
2.5-3"	Front Leveling Kit	\$129.95
2.5-3"	Leveling Lift Kit w/rear blocks	\$169.95
4.5"	Complete Kit w/2.0 Rear Shocks	\$1249.95
6"	Complete Kit w/2.0 Rear Shocks	\$1299.95
➤ 1999-2006 Tundra 4WD		
2.5"	Leveling Lift Kit w/rear blocks	\$269.95
➤ 2005-2015 Tacoma 4WD		
3"	Leveling Lift Kit w/rear blocks	\$249.95
4"	Complete Kit w/2.0 Rear Shocks	\$999.95
6"	Complete Kit w/2.0 Rear Shocks	\$999.95

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FUEL INJECTION CONVERSIONS

Swap your carb for EFI

By Jay Kopycinski editor@fourwheeler.com Photography: Courtesy of the manufacturers

THE CARBURETOR WAS INVENTED WELL OVER a century ago and served the internal combustion engine well. Later, electronic control was married to carburetors with so-so results. Okay, the results were actually horrible. Then, when electrically actuated fuel injectors took the place of the traditional venturi carb, performance improved immensely. The ability to more precisely control fuel mixture over temperature, atmospheric pressure, and rough terrain was

a huge boon to four wheelers.

These days, new vehicles come from the factory with some form of electronic fuel injection (EFI). Luckily, if you drive an older carbureted rig or are building up your own engine, you have a wide array of aftermarket choices of EFI. The majority of systems listed here are targeted towards V-8 engines, with some four- and six-cylinder options for a few applications. Approximate street prices are listed. Note: Not all systems are street emissions legal.

Almost all systems include an electronic control unit (ECU) or electronic control module (ECM), which is the brain of the system. The most common system types are throttle-body injection (TBI) or multipoint injection (MPI). We've tried to describe what is and isn't included in each system, but know you'll often have to source some additional parts such as an air cleaner, throttle linkage, or transmission interface when making the swap from a carburetor to an EFI system.



AFFORDABLE FUEL INJECTION (AFI) MPI SYSTEM

Overview: Multipoint fuel injection conversions are a step up from the TBI systems AFI offers. It provides the components needed to run a closed-loop GM-style system. Electrical installation requires only three wire connections (ignition, battery, and ground). A replacement intake manifold is provided, along with a two or four-barrel throttle body based on engine application. The systems will soon be upgraded to operate with GM LS electronics.

Includes: Intake manifold, throttle body, fuel pump, fuel rails, injectors, regulator, ECM, sensors, harness, distributor

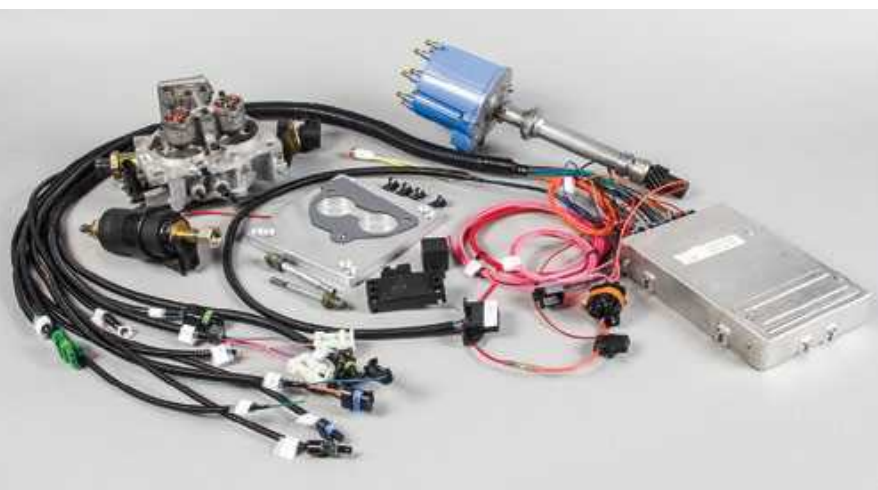
Additional Parts Required: Fuel lines

Fuel Pressure: 40 to 47 psi

Special Considerations: Can add heated O2 sensor or electric fan control

Price: \$1,900-up

Source: Affordable Fuel Injection, 248/393-1621, affordable-fuel-injection.com



AFFORDABLE FUEL INJECTION (AFI) TBI SYSTEM

Overview: TBI conversions have been AFI's mainstay product line, using a repurposed GM TBI unit and ECM for most applications. Their setup allows full fuel and spark advance control for most engine combinations. This offers an economical alternative to a troublesome four-barrel carburetor using a relatively simple, reliable EFI system. This is essentially GM's well-proven OEM TBI system.

Includes: Rebuilt GM TBI unit & ECM,

sensors, harness, manifold adapter, distributor, fuel pump

Additional Parts Required: Fuel lines

Fuel Pressure: 9 to 13 psi

Special Considerations: Adapter plates can also mate to two- and one-barrel intakes

Price: \$900-up (approx.)

Source: Affordable Fuel Injection, 248/393-1621, affordable-fuel-injection.com

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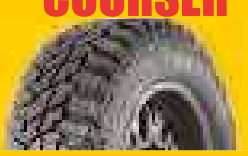


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CHEVROLET PERFORMANCE RAM JET FUEL INJECTION

Overview: Multi-point fuel-injection speed-density system. Designed for small-block Chevy applications with Vortec cylinder heads. Must be combined with an aftermarket wiring harness and programmed engine computer.

Includes: Intake manifold, throttle body, fuel rails, injectors, fuel regulator, dis-

tributor, ignition coil/wires

Additional Parts Required: Programmed ECM, aftermarket harness, fuel system, O2 sensors

Price: \$1,900 (approx.)

Source: Chevrolet Performance, chevrolet.com/performance



EDELBROCK E-STREET EFI SYSTEM

Overview: TBI-style fuel injection kit that uses a pre-installed interface on a supplied touchscreen tablet PC. Allows the user to fine tune, make adjustments, and monitor system performance without a laptop. Supports up to 600 hp. Utilizes a wide-band O2 sensor and is self-learning as vehicle is driven. Compatible with popular ignition systems and distributors. ECU can control two fans, and tablet can

display monitoring gauges.

Includes: TBI unit, ECU, touch screen tablet PC, harness, sensors

Additional Parts Required: Fuel supply system of choice

Fuel Pressure: 49 to 58 psi

Price: \$2,200 to \$2,700 (approx.)

Source: Edelbrock, 310/781-2222, edelbrock.com



EDELBROCK PRO-FLO 2 EFI SYSTEM

Overview: Sequential EFI system available for a wide range of applications, including small-block and big-block engines. Uses a flash-programmable ECU and a graphic user interface on a handheld calibration module to program with or without a laptop. Offers two tuning strategies: speed density (engine speed versus manifold absolute pressure) and alpha-N (engine speed versus throttle position). Can work with a narrow-band (included) or wide-band O2 sensor.

Includes: Intake manifold, throttle body, fuel rails, injectors, ECU, harness, sensors, handheld calibration module

Additional Parts Required: Fuel supply system (included in some kits)

Fuel Pressure: 50 psi (approx.)

Special Considerations: Includes Mallory distributor for some applications

Price: \$3,500 to \$4,200 (approx.)

Source: Edelbrock, 310/781-2222, edelbrock.com



EDELBROCK PRO-FLO XT EFI SYSTEM

Overview: Multi-port fuel injection system available for small-block and big-block Chevy and big-block Chrysler engines. Has forward facing throttle body assembly. The system uses the speed-density method of electronic engine management and is highly tunable.

Includes: Complete intake manifold with injectors, fuel rails, throttle body, ECU, harness, handheld calibration module, Mallory distributor

Additional Parts Required: Fuel supply system (included in some kits)

Fuel Pressure: 50 psi (approx.)

Special Considerations: Offered in various stages with increasingly larger injectors to support high horsepower applications

Price: \$3,900 to \$4,300 (approx.)

Source: Edelbrock, 310/781-2222, edelbrock.com



FAST EZ-EFI SYSTEM

Overview: Self-Tuning TBI kit capable of servicing engines up to 650 hp. Bolts to existing intake manifold. A setup wizard on a handheld unit guides user through start-up, and the kit tunes itself while being driven. Works with original carb-type distributor, Holley-style throttle linkage, and four-barrel intake manifold. Utilizes common GM sensors and a wide-band O2 sensor. Works with all ignition systems.

Includes: TBI unit, ECU, harness, sensors, handheld unit

Additional Parts Required: Fuel supply system of choice

Fuel Pressure: 40-plus psi

Special Considerations: Intake manifold adapter supplied for Jeep CJ/YJ applications

Price: \$1,700 to \$2,400 (approx.)

Source: FAST, fuelairspark.com

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FAST EZ-EFI 2.0 SYSTEM

Overview: Self-Tuning TBI kit capable of servicing engines up to 1,200 hp. The updated Version 2.0 continues the practice of setup without the need for a laptop or tuning trial. The system uses eight injectors and includes ignition timing control. A color touchscreen handheld unit is included that provides on-board diagnostics. Works with return or non-return fuel feeds and most common ignition systems.

Includes: TBI unit, ECU, full harness, sensors, handheld color touchscreen
Additional Parts Required: Fuel supply system of choice
Fuel Pressure: 40-plus psi
Special Considerations: Greater precision when combined with a FAST distributor or crank trigger
Price: \$2,300 to \$3,600 (approx.)
Source: FAST, fuelairspark.com

HOLLEY TERMINATOR EFI SYSTEM

Overview: This TBI system utilizes a four-barrel throttle body that flows up to 950 cfm to support engines from 250 to 600 hp. The system is fully self-tuning, with no laptop required. It provides ignition timing control on engines with small-cap GM HEI and Ford TFI distributors (with adapter). Fits all standard flange intake manifolds.
Includes: TBI unit, ECU, handheld controller, harness, sensors

Additional Parts Required: Fuel supply system of choice
Fuel Pressure: 45 psi (approx.)
Special Considerations: Terminator ECU can be easily updated to Holley HP ECU specs for use with LS, boosted, nitrous, and other applications.
Price: \$2,000 (approx.)
Source: Holley, 866/464-6553, holley.com

HOLLEY HP MULTI-PORT EFI SYSTEM

Overview: A step up in the Holley line is their HP MPI four-barrel injection system. System has self-tuning capabilities and is programmable with a laptop or the optional color touchscreen unit. Kits are offered for GM LS applications, older small-block and big-block Ford, Chevy, Mopar, Mod Motor, and Ford Coyote, plus late-model Hemi engines.
Includes: Intake manifold, billet throttle

body, fuel rails, ECU, harness
Additional Parts Required: Fuel supply system and injectors of choice
Fuel Pressure: 44 psi (approx.)
Special Considerations: System can support boost control, progressive nitrous, water/methanol injection, etc.
Price: \$2,800 to \$3,300 (approx.)
Source: Holley, 866/464-6553, holley.com

MEGASQUIRT DIY EFI COMPONENTS

Overview: For those that like to delve into building their own systems, Megasquirt EFI systems may meet that need affordably. DIYAutoTune offers the ability for customers to piece together their own EFI and ignition control systems, even assembling your own circuit boards, if you like to solder. The systems are highly programmable and can be a basic TBI setup or more complex MPI system with

full engine management capabilities.
Includes: Varies by customer choices
Additional Parts Required: OEM or after-market intake, injectors, throttle body
Fuel Pressure: Depends on system
Special Considerations: Can provide progressive nitrous control, boost control, rev limiters, fan control
Price: Varies by customer choices
Source: DIYAutoTune, diyautotune.com

MSD ATOMIC EFI SYSTEM

Overview: This TBI-based system was designed to be simple to install and set up. It is self-tuning and requires no laptop for interfacing. A hand-held controller provides the user interface to the system and can serve to monitor engine parameters in real time. The Atomic is capable of operating with a return or non-return fuel system.
Includes: Throttle body, power module,

handheld controller, harness, sensors, standard fuel kit (some kits)
Additional Parts Required: Fuel supply system of choice (some kits)
Fuel Pressure: 42 psi (approx.)
Special Considerations: Boost and wet nitrous ready (blow-through or draw-through)
Price: \$2,400 (approx.)
Source: MSD, msdperformance.com



PROFESSIONAL PRODUCTS POWERJECTION III

Overview: Designed as a replacement system using throttle-body injection. Supports up to 550 hp. It has the adaptive-learning engine management system (EMS) built into the throttle body. Laptop programmable. System can control spark timing. Can be used with return or non-return fuel systems. Comes as a base kit or complete kit with fuel supply components.

Includes: TBI unit, EMS, harness, sen-

sors, no-weld oxygen sensor bung

Additional Parts Required: Fuel supply system of choice (if not complete kit)

Fuel Pressure: 45 psi (approx.)

Special Considerations: Minimal external wiring and throttle body designed to look similar to a carburetor

Price: \$1,700 to \$2,200 (approx.)

Source: Professional Products, 323/306-5067, professional-products.com



QUICK FUEL EFI SYSTEM

Overview: The QFi fuel-injection comes in a base kit or master kit. The throttle body utilizes a unique 8-hole venturi said to provide superior fuel atomization when compared to traditional injector nozzles. Accommodates engines up to 575 hp. Uses adaptive learning. Programmable with provided handheld controller or laptop. Has onboard ignition driver and timing controlled by ECU. Utilizes common OEM sensors.

Includes: TBI unit, ECU, handheld controller, harness, sensors, laptop cable

Additional Parts Required: Fuel supply system of choice (if not master kit)

Fuel Pressure: 40 to 45 psi

Special Considerations: Compatible with wet-flow nitrous, superchargers, and turbochargers

Price: \$1,900 to \$2,200 (approx.)

Source: Quick Fuel, 270/793-0900, quickfueltechnology.com **FW**

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PASSION FOR PERFORMANCE

4x4 powerplant guide

By Jay Kopycinski editor@fourwheeler.com Photography: Courtesy of the manufacturers

WHETHER YOU'RE BUILDING A NEW RIG FROM THE GROUND UP OR renovating one with a new powerplant, crate engines can offer a solution to the absent, tired, or blown engine in your project. We've compiled a list of engine suppliers that can offer

solutions for nearly all budgets. Powertrain offerings range from well-appointed long-block replacements to as close to ready-to-run as you can get with companion transmissions and complete electrical engine management systems. Fortunately for you, your options are many.

CRATE ENGINE OPTIONS

ATK

ATK is a large engine remanufacturer in North America covering a huge range of domestic and foreign engines. Additionally, the company offers GM, Ford, and Chrysler high-performance options, including stroker and turnkey engines. They can also do custom builds and can mate a custom-built transmission to your engine.

SOURCE: ATK, atk-engines.com



CHEVROLET PERFORMANCE

Chevrolet Performance offers more than 40 different crate engines from the 2.0L LTG turbocharged four-cylinder engine to its baddest big-block V-8. The ZZ572 is a monster pumping out 720 hp and over 600 lb-ft of torque. It offers both carbureted and fuel-injected crate engines, along with harness and ECU assemblies where needed. Transmissions and other engine accessories are available to help complete the installation.

SOURCE: Chevrolet Performance, chevrolet.com/performance

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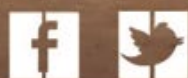


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EDELBROCK

Edelbrock has been well-known as an aftermarket performance supplier for decades. Several years ago it entered the crate engine market with offerings for small-block Chevy, big-block Chevy, and small-block Ford powerplants. Engines are available with carburetors or fuel injection. Its Chevy LS and Ford Coyote engines are topped with an Edelbrock EForce supercharger and can be ordered complete with accessories and electronics package that is essentially ready to run.

SOURCE: Edelbrock, 310/781-2222, edelbrock.com



FORD PERFORMANCE

Ford Performance can satisfy owners looking for blue oval crate engines. Its lineup spans engines set up to accept traditional carburetors or with fully equipped fuel-injection systems. Popular Ford V-8 displacements are available at various competition levels. Ford also offers an EcoBoost choice and several versions of its modular 5.0L V-8 engines built for more serious builds with components built to withstand forced induction, such as a supercharger.

SOURCE: Ford Performance, fordperformanceracingparts.com



GOLEN ENGINE SERVICE

Golen Engine Service builds custom GM LSX and LT1/LT4 powerplants from short-block up to turnkey engines. It also offers a turnkey supercharged LS1, or for those looking for more go from their Jeep I-6 engine, Golen has a 4.6L stroker with the ability to add a supercharger or turbo on top.

SOURCE: Golen Engine Service, 800/591-9171, golenengineservice.com



JASPER ENGINES & TRANSMISSIONS

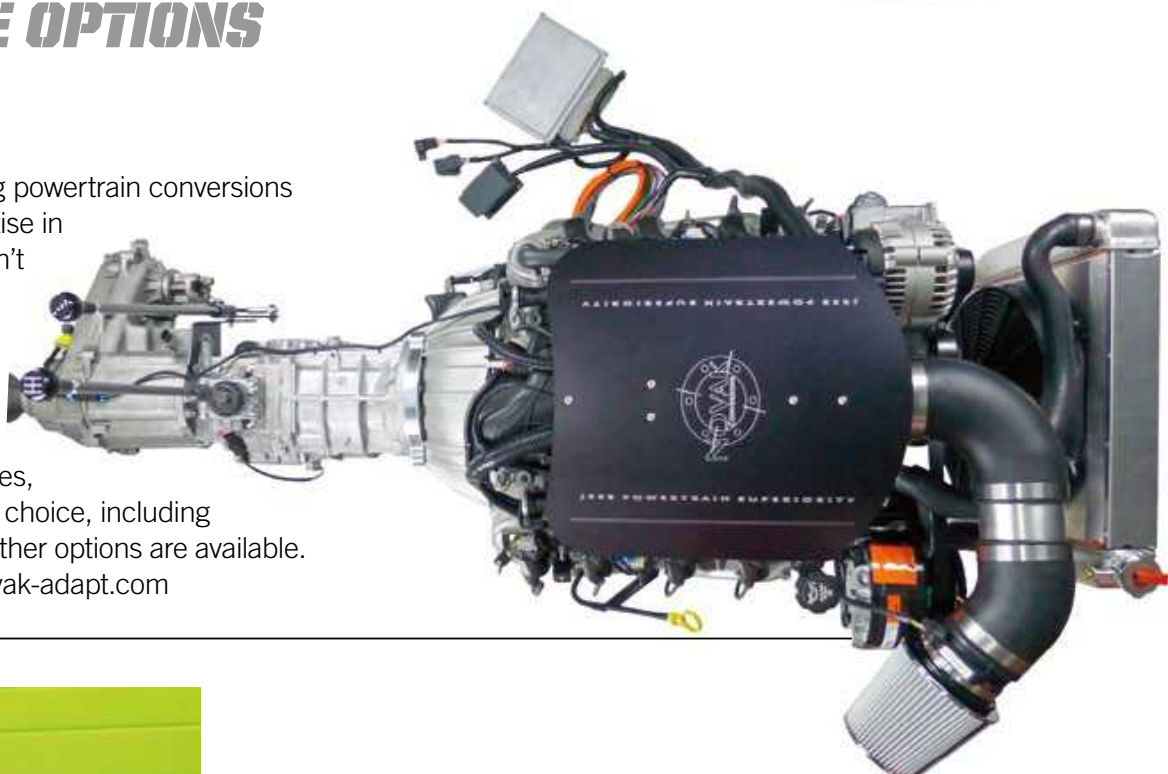
Jasper Engines & Transmissions is a major supplier of completely remanufactured Ford Triton and GM Gen III and Gen IV engines rebuilt with new parts to meet or exceed the original factory specifications. The company also provides crate engines at four levels of increasing performance. While it doesn't offer complete ready-to-run-style engines, it can provide a custom packaged parts kit to complete the engine installation, minus ignition, fuel system, and exhaust components.

SOURCE: Jasper Engines & Transmissions, 800/827-7455, jasperengines.com

NOVAK CONVERSIONS

Many know Novak Conversions has been providing powertrain conversions for nearly half a century and has substantial expertise in what works in what vehicle. But most probably didn't know Novak offers complete or partial powertrain components for your project. Novak assembles an entire powertrain on a test stand and test runs it. The crated powertrain arrives to you ready to drop into the vehicle. Powerplant choices are typically late-model GM salvage V-6 and V-8 engines, combined with a transmission and transfer case of choice, including one supplied by the customer. Modifications and other options are available.

SOURCE: Novak Conversions, 877/602-1500, novak-adapt.com



LSx4U.COM

LSx4U.com is a supplier of salvage Chevy LS V-8 engines. The company sells engines in two ways: basic standalone or its "drop out" version that includes OEM engine harness, ECM, exhaust downspouts, and all the engine accessories. It can provide a re-worked harness for your application and provide transmission help to successfully mate your LS engine to a drivetrain.

SOURCE: LSx4U.com, 207/457-5500, lsx4u.com



SUMMIT RACING

Summit Racing offers several manufacturers' crate engines built with all new parts such as this Chevy Performance 350 crate engine. The long-block engine with oil pan and valve covers is accompanied in shipment by an intake manifold, carburetor, HEI distributor, air cleaner, and a few other parts. It does require assembly of those parts, along with integration with your electrical and ignition system.

SOURCE: Summit Racing, 800/230-3030, summitracing.com



TILDEN MOTORSPORTS

Tilden Motorsports specializes in GM LS engines and can offer assistance to customers performing these swaps. The company offers ready-to-run V-8 engine packages comprised of new or take-out engines with standalone engine harnesses and pre-flashed engine computers. Engines range in size from their stock 4.8L Vortecs to its high-horsepower Pro Series LS3 that puts out 625 hp after substantial modifications.

SOURCE: Tilden Motorsports, 480/600-0122, tildenmotorsports.com **FW**

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LOT 61259 90764 shown

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2 TON CAPACITY FOLDABLE SHOP CRANE

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LOT 90899 shown 98025/69096

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LOT 61258 shown 61840/61297/68146

NEW

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LOT 69262 69094/61916 2745 shown

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LOT 2696/61277 807/61276 62431 239 shown

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LOT 61609 67831 shown

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PITTSBURGH AUTOMOTIVE

3 TON HEAVY DUTY STEEL JACK STANDS

LOT 38846 shown 69597/61196 62392

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LOT 60363/69730/68120 68121/69727 shown CALIFORNIA ONLY

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WOW SUPER COUPON

THUNDERBOLT solar

45 WATT SOLAR PANEL KIT

LOT 62443 68751 shown

SAVE \$160

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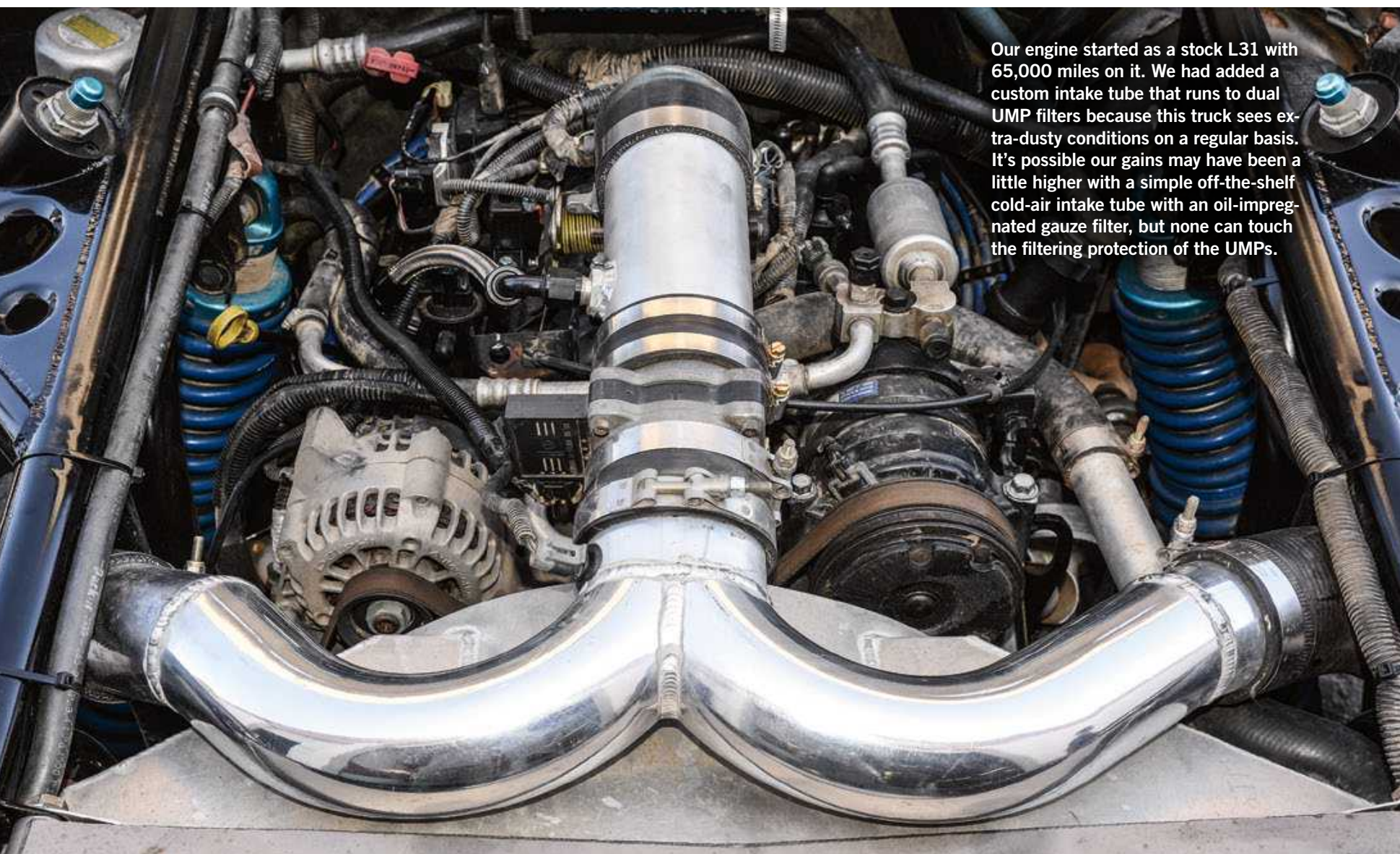
Affordable bolt-on power for '96-'00 GM Vortec 5700 engines

By John Cappa editor@fourwheeler.com Photography: John Cappa

GMS V-8 ENGINE SWAPS SEEM TO BE ALL THE rage, and for good reason. They deliver a lot of power and efficiency with little effort. However, that doesn't mean you should toss out your perfectly running cast-iron Vortec 5.7L like old bathwater. The '96-'00 350ci Vortec 5700 engines enjoy lots of aftermarket support to help improve the 255 hp and 330 lb-ft of torque they're rated for at the crank. An engine swap can be quite costly, so putting even a quarter of those funds into your Vortec 350 engine could get you where you want to be.

When it comes to making cheap and easy power with almost any V-8, it's hard to beat a camshaft swap. So, that's what we set about doing with our 65,000-mile '96 5.7L Vortec engine. Once we finished the installation, which included a hydraulic roller Crane Cams camshaft and valvetrain bits, along with Taylor Cable throttle body and intake spacers, we sent the truck out to The Dyno Shop in Santee, California, to have the computer tuned. Some tweaking on the dyno resulted in a much better air/fuel ratio and almost 20 hp on top of the 45 hp we gained from the cam swap.

Unfortunately, we were unable to get a baseline on the dyno before the cam swap. However, you can generally figure on about a 20 percent loss of power through the drive-train. For our application, 20 percent is a bit conservative given the Ford 9-inch rear, tight gearing, and bigger tires, but that's what we'll go with to be conservative. That 20 percent reduction would have put our stock 255hp 5.7L at around 200 hp at the rear wheels. The cam swap bumped us up to 245 hp, and with the computer tuning, we hit 268 hp. But what is more impressive is the incredibly flat torque



Our engine started as a stock L31 with 65,000 miles on it. We had added a custom intake tube that runs to dual UMP filters because this truck sees extra-dusty conditions on a regular basis. It's possible our gains may have been a little higher with a simple off-the-shelf cold-air intake tube with an oil-impregnated gauze filter, but none can touch the filtering protection of the UMPs.

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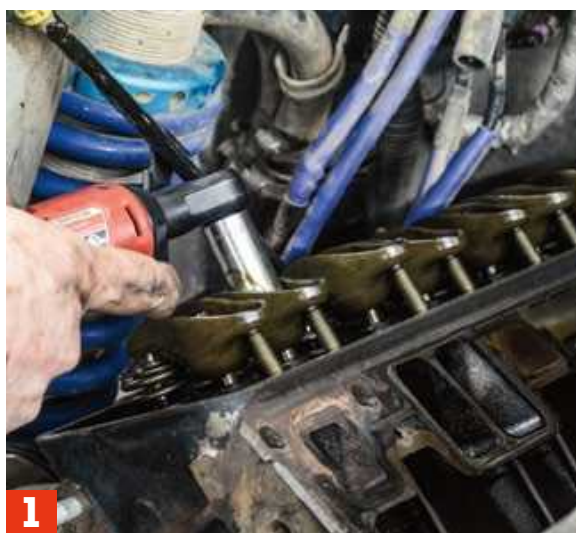
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curve that hovers around 280 lb-ft all the way up to 5,000 rpm, which makes this a great engine for towing, dirt abuse, and daily driving. Our engine is backed with a stock 4L60E four-speed automatic and 5.29 axle gears. Our truck rolls on 37-inch tires and weighs 5,400 pounds. We noticed an immediate improvement in on-road drivability. Overdrive used to be kind of sluggish. Now the transmission feels like an actual four-speed. The truck is more fun to drive and much quicker. Throttle response is noticeably crisper, and we don't feel like we have to floor it as often to get where we are going.



1. We started by rotating the crank to top dead center and disassembling the engine. You can install a new camshaft with the engine still in the vehicle in most cases. You'll need to remove the radiator, intake, part of the front accessory group, water pump, timing cover, valve covers, rockers, pushrods, lifters, and so on. Since we were already most of the way in there, we eventually decided to pull the engine and replace some leaking seals that had been bothering us.

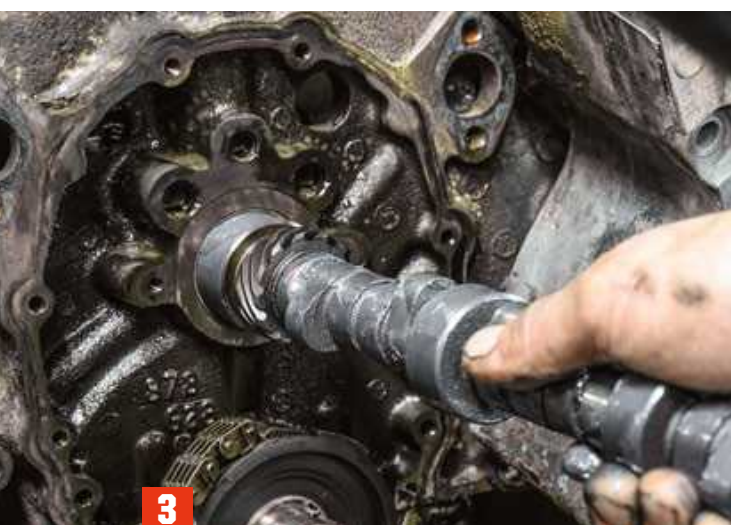
2. With all of the other components out of the way, you can remove the camshaft from the engine block. Be careful when pulling it out—you don't want to nick or damage the cam bearing surfaces inside the block with the sharp edges of the camshaft lobes.

3. Our Crane Cams cam (PN 08-500-8) has a duration of 206/212 at 0.050 and lift of 0.480/0.488 ground on a 112 lobe separation angle. It's a great torque producer and pulls a lot of vacuum at idle to keep the computer system happy. We lubed each lobe of the new cam with assembly lube before carefully sliding it into its new home.

4. Our old timing chain and gears were in good shape. We lined up the timing marks and reinstalled the parts. If your chain or gears look at all worn, now is a good time to replace them.

5. A cam swap doesn't require the removal of the heads, but we had some leaks to fix. Since the heads were already off, we gasket-matched the intake and exhaust ports with a die grinder just to take care of any small misstep between the intake and head transition. Don't go too deep if you don't understand head port flow characteristics or you could actually reduce the intake charge velocity and hurt performance. Many aftermarket companies offer fully ported small-block Vortec heads if you're working up a high-performance application.

6. We added a Taylor VMAX manifold spacer kit to our 5.7L. The spacer is said to increase air volume by up to 31 percent, which should help improve throttle response, torque, and horsepower. The beautifully machined, 1-inch-thick billet-aluminum spacer is O-ringed just like the stock intake manifold, making it easy to install.





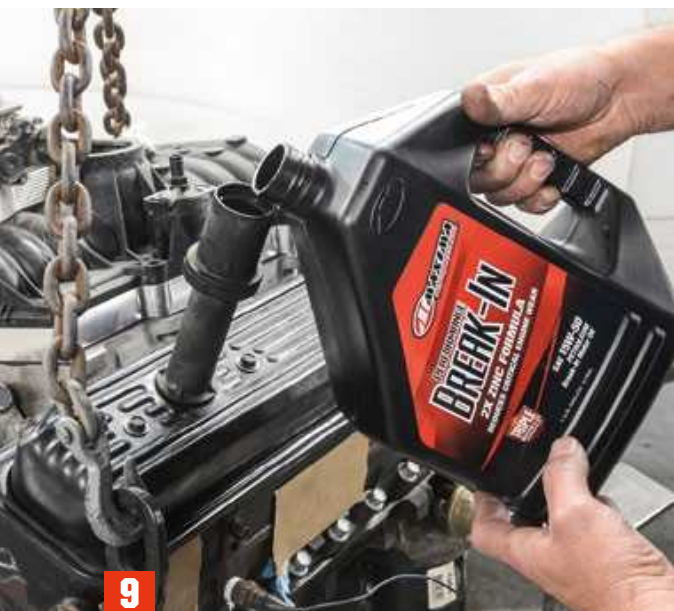
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7. We reinstalled our home-job ported heads and slapped Crane Cams OE replacement lifters (PN 850-16) into the block. The heads received Crane Cams beehive springs (PN 26918-16), which allows clearance of the stock valve guides while achieving a max lift of .500-inch. The springs and valves are clipped in place with Crane Cams steel spring retainers (PN 787-16). Crane Cams Magnum 1.52:1 roller rockers (PN 1417-16) free up some extra horsepower by virtue of their lower friction. We could have gone with 1.6:1 ratio rockers to eke a bit more lift (and power) out of our camshaft, but that would put our net lift at 0.505-inch, right at the ragged edge of the valvesprings' bind limit without machining the valve spring seat and guide.



8

8. We had already welded an aluminum ring to the top of our throttle body to attach our air cleaner assembly. The narrower section of the stock throttle body was bored out on a lathe. The large diameter is unchanged, and we still have the stock butterfly. We added a Taylor throttle-body spacer, which is said to improve throttle response and increase torque and horsepower.



9

9. Even though hydraulic roller camshafts don't require the extensive break-in procedures of a flat-tappet camshaft, we still took the precaution of filling our engine with Maxima Performance Break-In oil to make sure the cam wasn't damaged during the first run. This oil has extra additives that reduce the wear on internal components.

10. We estimate that we started with about 200 hp at the rear wheels and discovered the cam and tuning bumped us up just over 68 hp and creates a very flat torque curve, which hovers around 280 lb-ft all the way up to 5,000 rpm. We're still using the stock injectors and fuel pressure regulator. This chart shows the before and after tuning of the computer by The Dyno Shop. **FW**

SOURCES

UMP

760/421-0300, uniquemetalproducts.com

Crane Cams

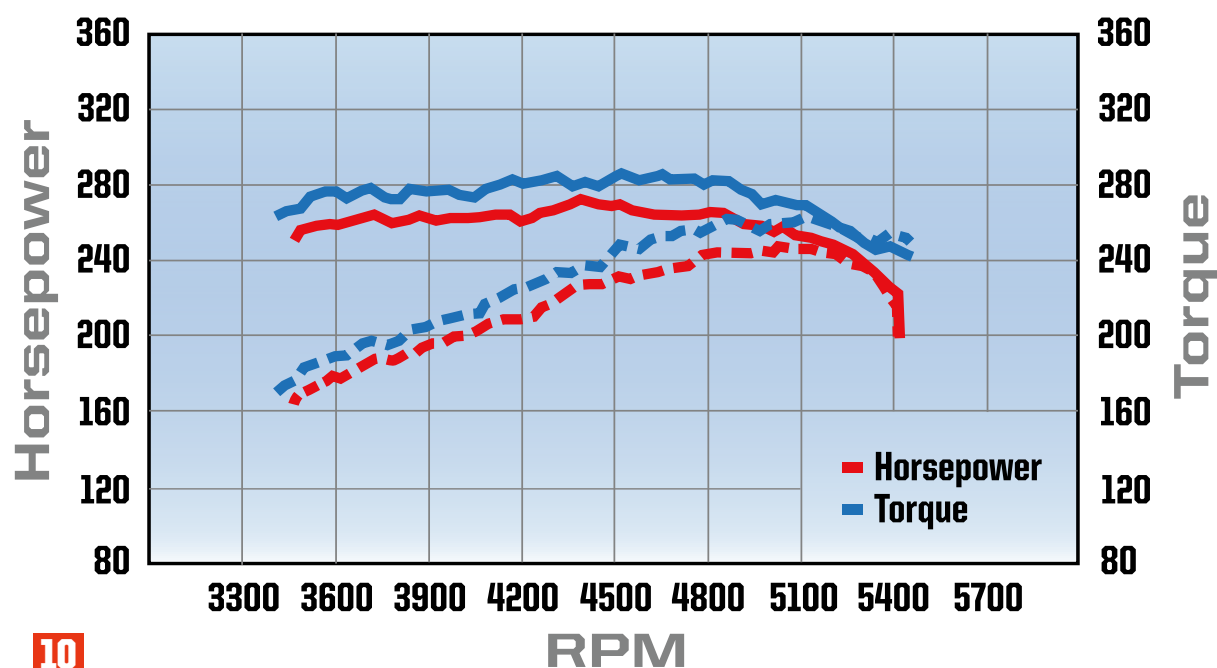
866/388-5120, cranecams.com

Taylor Cable Products

816/765-5011, taylorvertex.com

The Dyno Shop

619/562-3933, thedynoshop.com



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A BETTER



BLUE OVAL



5.0L Ford Ranger built for fun

By Ali Mansour editor@fourwheeler.com Photography: Ali Mansour

THE OFF-ROAD HOBBY IS TREMENDOUSLY GREENER THAN PEOPLE GIVE it credit for. Need an example of this? Just check out your local Craigslist. Without a doubt, the pages will be full of used vehicles and parts, many for a fraction of what they originally cost new. The creativity and cost savings that the pre-owned market creates is something that is truly exceptional.

Take Jody Treadway's '99 Ford Ranger for example. After years of building an assortment of 4x4s, he was ready for his next project. Looking for a good deal, he did like most of us do and scoured the classifieds around the web. He landed on what looked like a very weathered, but overall well-built, Ford Ranger. Spending so many years building his own vehicles, he wasn't sure how he felt about buying some else's old wheeling rig.

After much thought, he decided the deal was too good to pass up, so he picked up the '99 Ranger. However, it was not the gem that you see here today. Thankfully, Ranger body panels are easy to come by on the cheap, and a paint job was just a rattle-can away. So, for a fraction of what it would have cost to build the rig from scratch, he ended with one that really just needed some TLC.

We're suckers for mini-trucks, so we were immediately drawn in when we saw it on the trail. Treadway says that he continues to find little things he wants to tweak and has since added a bit more Southern pinstriping and body damage, thanks to the tree-lined trails he likes to wheel. While buying an already-built rig isn't for everyone, it is often a good way to get a good value and get on the trail quickly. Even if you are a reviving a once-beaten trail rig back to life, it can be just as rewarding.



1

1. Inside of the cab, the original seats have been swapped out for a more plush set from PRP, and the carpet replaced with a durable Rhino liner. A bevy of Auto Meter gauges help monitor all the vitals. A set of cutting brakes (red knobs) is positioned easily within reach and work well with the Northwest FabWorks cable shifters that control the flipped Dana 300 T-case. Since the photo shoot, the Dana 300 has been swapped out for an Atlas II with a 4.3:1 low range.

2. A custom three-link with a track bar controls the Jeep Wagoneer-sourced Dana 44 front axle. A traction aid comes by way of an ARB Air Locker, which, since our feature shoot, was paired with a set of RCV Performance axleshafts. Steering duties are handled by a Howe hydraulic-assist kit and aluminum tie rod and draglink.

3. A 31-spline Ford 8.8 rear axle sits out back and is fit with Moser chromoly axleshafts, a Detroit Locker, and 5.13 gears. A triangulated four-link suspension keeps the axle isolated, while a Currie Antirock sway bar increases the rig's stability on-road and off. The low-lift height and tremendous articulation is thanks to a set of Fox 2.5 air shocks, which provide 16 inches of travel.

4. Under the hood, the stock V-6 was replaced with a 5.0L Ford V-8. The small-block Blue Oval engine was bored .030 over, fit with GT40P heads, B303 camshaft, 1.7 roller rockers, GT40 intake manifold, shorty headers, MagnaFlow muffler, and an oil pan from a Ford Explorer. After some tuning help from Power Adder Solutions, the engine is now said to be pumping out 300 hp and 325 lb-ft of torque.



2



3



4



5



6

5. This Ranger's bed is far from typical. A 15-gallon aluminum fuel cell feeds the fire, while an Optima YellowTop battery was moved to the back as well. The custom cargo basket offers a place for extra gear, and the spare tire mount securely holds his fullsize 37 (removed for the photo).

6. To have the drivetrain tucked within the framerails, a 3-inch body lift was procured. Another high-clearance feature was achieved by removing 3 inches from the bottom of the cab, which allowed the sliders to be mounted on the same level as the frame. At the rear of the cab, you will also see that the transition from the Ranger's stock framerails moves to 1½-inch, 0.120-wall DOM tubing with plate reinforcements.

7. Similar to the rear, the front uses 2.5 Fox air shocks, but these are of the 14-inch-travel variety. To control the travel, limit straps were used all around. If you look closely, you'll notice that the stock framerails have been replaced by DOM tubing from the firewall forward.

8. Despite having nearly as much tube work as a full-on buggy, the Ranger still appears close to how it came from the factory. Treadway replaced all of the body panels and gifted the truck with "new Ford blue" paint job via eight cans of spray paint. The subtlety of the 'cage and the functionality of the entire package makes this Ranger one of our favorite domestic mini trucks we've come across.

9. Helping with the approach and departure angles are custom tube bumpers that tie in cleanly to the chassis. The inset Warn 9.5ti winch upfront and factory grill were especially well executed.



7



8



9

» AT A GLANCE

GENERAL

Vehicle: '99 Ford Ranger
Owner: Jody Treadway
Stomping grounds: Horse Shoe, North Carolina
Build Time: N/A

DRIVETRAIN

Engine: 5.0L Ford V-8
Transmission: C6 automatic
Transfer case(s): Flipped Dana 300
Low range ratio(s): 2.62:1
Crawl ratio(s): 33.06:1
Front axle/differential: Dana 44/chromoly axleshafts, ARB Air Locker, 5.13 gears
Rear axle/differential: Ford 8.8/Detroit Locker, 5.13 gears

SUSPENSION

Front: Custom 3-link, 2-in, 0.250-wall control arms, 14-in-travel 2.5 Fox air shocks
Rear: Custom triangulated 4-link, 14-in-travel 2.5 Fox air shocks, Currie Antirock sway bar
Steering: Howe hydro-assist

TIRES/WHEELS

Tires: 37x12.50-17LT Maxxis Trepador Bias
Wheels: 17x10 Allied beadlock

MISCELLANEOUS

Armor: Custom tube bumpers and sliders
Cool stuff: 3-in body lift, 15-gal fuel cell, Optima YellowTop battery, Derale transmission cooler, Art Carr shifter, Oliver's Custom Drive Shafts, Warn 9.5ti winch, Smittybilt synthetic winch rope, Auto Meter gauges, PRP seats **FW**

2015 OVERLAND

Droolworthy 4x4s, campers, trailers, and equipment

By **John Cappa** editor@fourwheeler.com Photography: John Cappa

WE USED TO SIMPLY CALL IT CAMPING. THEN SOMEONE INVENTED THE titanium coffee cup, \$500,000 4x4 expedition motorhomes, and shirts and pants with more pockets than you have stuff to put in them and Overlanding was born. It wasn't long before Overland Expo West found a home base at Mormon Lake, Arizona, just south of Flagstaff. Companies and Overlanders from all over the world gather to show, sell, and ogle the latest in equipment offerings. There are always cool, and unconventional 4x4s at Overland Expo so we had to stop by and take a look. The last few years at the event have been fairly warm. This year, cold winds, rain, snow, and hail hit the lakebed. So much for global warming. Fortunately, the weather didn't seem to dampen the spirit of the attendees, but the event became a great mud bath, which tested mettle of both the campers and their gear. For more information on the east and west coast 2016 Overland Expo events, go to overlandexpo.com.



🔥 The really cool larger Unimog campers tend to gather in a herd at the southeast end of the event. This Unimog featured a factory flatbed topped with a slide-in pop-up camper. It rolls on 16.00R20 Michelin XZL tires mounted to military double beadlock wheels. A hydraulic winch and bunch of gear was hung off the front bumper.



🔥 This Mitsubishi Fuso Canter 4x4 features a BlueTec clean diesel engine and a Duonic six-speed dual-clutch automated manual transmission. We suspect this is the kind of transmission technology that will ultimately replace the traditional slushbox automatic transmission.



ND EXPO WEST



There really aren't a lot of GM products in the overlanding world. Nevertheless, GM fans can rejoice. You can rent a fully equipped 4x4 Silverado from Overland Vehicle Rentals (overlandvehiclerentals.com).



If you like big industrial hydraulic winches and other gear, you can find a lot of it on the heavier 4x4s at the show. The spare tire mounts on some of these vehicles are usually very elaborate as well. Most include small winches to help move the spare tires that can weigh several hundred pounds each.

Ex-civil service vehicles like this 4x4 ambulance make great platforms to build a budget, yet reliable overlanding 4x4. Most of these state and federal vehicles have undergone religious maintenance, so they are likely in better shape than other similar heavy-duty 4x4s.



Turtleback Trailers (turtlebacktrailers.com) gives you the ability to build your custom trailer online exactly how you want it, complete with pricing. Each trailer starts out as a full-steel 2x3-inch perimeter box frame with a 3,500-pound rubber torsion axle.



Global Expedition Vehicles (globalxvehicles.com) had this Unimog available for sale. If you have to ask how much, you probably can't afford it. We suspect it was certainly under \$500,000.



➔ This M35 featured what looked like enough fuel tanks in the bed to take it halfway across America. Dollar for dollar, it's hard to beat a surplus M35 if you are looking for a budget monster-sized overland vehicle platform to start with.



➔ The Grub Hub (grubhubusa.com) folding camp kitchen is a compact one-stop station for camp cooking and cleaning. The Grub Hub stores all of your cooking and cleaning utensils and rolls out easily on a pair of wheels when collapsed.



➔ James Baroud (jamesbaroudusa.com) offers several different hard-shell pop-up rooftop tents. They can be fit to any number of applications, including to this newer Land Rover Defender.



➔ U-Joint OffRoad (ujointoffroad.com) brought out this interesting Ford van conversion with a hard-sided pop-up camper. All of your gear and supplies store in the bottom section, and you sleep up top. Lowering the pop-up secures your gear for travel.



➔ The folks at Smittybilt (smittybilt.com) had some great ideas for an adventure camp trailer. This prototype version had sealed doors, a pop-up rooftop tent, and a storage compartment for a generator. The production model will be made in the USA and likely include adjustable fenders to allow for different tire sizes. Pricing was rumored to be around \$5,000, which is a lot less than comparable trailers.



Four Wheel Campers (fourwh.com) showed off several slide-in pop-up campers designed for the smaller mid-sized trucks like the Toyota Tacoma. Many amenity options are available for both 5 and 6-foot beds.

➡ The Moby1 (moby1trailers.com) trailer looked like a transformer had just opened up. It features two separate sleeping quarters, running water, a stove, a refrigerator, a sound system, and a big-screen TV. Several different trailer sizes and models are available.



➡ The Swag Off Road (swagoffroad.com) Bandit Lock Box secures a popular Honda EU2000i Inverter Generator. The box allows access to all the needed controls and can be welded or bolted to a trailer or rack. The generator can be easily unlocked from the box assembly and carried wherever power is needed.

➡ This was one of two GM trucks we saw at the show. The Malayan LT from Tiger Adventure Vehicles (tigervehicles.com) replaces the bed of your 1-ton pickup with a camper structure. A larger and roomier Malayan HT is available for Ford F-450/550 and Ram 4500/5500 trucks.

➡ This Findlay (findlaytoyota.com) Toyota Tundra wasn't exactly an overlanding vehicle, but the big screen TV, multi-speaker sound system, and pull-out stainless-steel barbeque would make it one heck of a tailgating party truck.



➡ For real-world 4x4 camping, it's hard to beat the practicality of a Ram Power Wagon with a Hallmark (hallmarkrv.com) slide-in camper. For durability, all Hallmark pop-up truck campers feature a molded fiberglass composite exterior frame and a one-piece molded fiberglass composite roof.

➡ American Expedition Vehicles (aev-conversions.com) built up this bright orange Ram 2500 with many parts from the AEV catalog. The components include a 3-inch DualSport SC suspension lift, snorkel, premium front bumper, and Katla wheels. **FWW**



BACKWARD GLANCES

'74 International 200 4x4 Camper Special

WHEN THE '74 MODEL YEAR INTERNATIONAL Light Trucks debuted, only a few outside the International Harvester (IH) boardroom knew the light trucks were on the chopping block; the blade poised for a decapitation. The perennial problem was per-unit profitability. International simply didn't build enough trucks to be able to match the prices of other mass-produced trucks on the market. As a result, their IH trucks were

somewhat overpriced for the market and there was little choice in the matter. It was that or sell at a loss. Furthermore, the dealers were nowhere near "Main Street" where the general public easily could see the great line of trucks IH offered. International dealers were found at the outskirts of town or in the industrial sections, sold alongside tractors, agriculture equipment, and big trucks. These were places most non-commercial light truck buyers didn't go.

From the corporate angle, International Harvester was a bit schizophrenic. It had many different divisions—some profitable, some not so much, but almost none in the non-commercial area. The centrally controlled division competed internally for resources, rather than being independent and managed on its own. This business model had worked for IH for many decades, but as with most big companies, major



➤ International called the smooth-sided beds "Bonus Load," and they were a more or less a standard 8-footer dimensionally. The rear step bumper was a \$71 option. The dual exhaust was included in the Camper Special package but cost \$39 à la carte.

➤ Resplendent in its original Flame Red (code 2289), the '74 200 4x4 is powered by International's 345ci V-8. It was ordered with the Camper Special Package, a \$275 option without A/C (with A/C it cost \$748), which included a rear sway bar, Deluxe King-Sized mirrors, a sliding rear window, 61-amp alternator, increased cooling, 16-gallon auxiliary fuel tank, and dual exhaust. The 7,700-pound GVW package (beefier springs and shocks, plus a 3,500-pound front axle) was \$67. The Deluxe Exterior Package (extra chrome, body side mouldings, hub caps) was \$120. The clearance lights on the roof are factory installed.





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changes in foundational structure come slowly.

It became increasingly clear that the Light Line, which included the legendary Scout, no longer fit the IH business model. Some in the boardroom had harped for many years to excise the Light Line completely. By the end of 1974, that process was underway, and though an abbreviated '75 model line debuted, the last International light truck rolled off the line on April 28 and that was that. The Scout carried the Light Line load until the end of 1980, when it too was cut for largely the same reasons.

The overall light truck model line had been consolidated for 1974. The four-digit model designations were replaced by three digits. The 1210 ¾-ton and 1310 1-ton 4x4s were replaced by the 200 line, which came in a range of three GVWs: 6,800, 7,200, or 7,700 pounds on a 132-inch wheelbase. Body types included a chassis cab, standard (step side) bed, and Bonus Load (smooth side) beds.

A large selection of engines was available. The base was the 6-258, AMC's 258ci inline-six, which made 113 hp and 191 lb-ft of torque. Next up was the V-304A, which cranked out 137 hp and 133 lb-ft. A very popular choice for the 200 line was the V-345 two-barrel engine that put out 144 hp and 263 lb-ft (or 156 hp/269 lb-ft with dual exhaust). The top-dog engine was the V-392 International: a four-barrel medium-duty truck engine that made 179 hp and 297 lb-ft (or 193 hp/305 lb-ft with dual exhaust). Both of the bigger engines were stump pullers that delivered peak horsepower at 3,600 rpm, and the only significant difference between them and the medium-duty truck installation was a governor and tuning.

The powertrain also had lots of options, starting with a standard T-331 three-speed manual. From there, you had the choice of



G The Custom Interior (shown here in Red) cost \$186 and pretty much maxed out the interior with the nylon insert seats, padded door panels, improved headliner, and full carpets. The Custom Interior package included an electric clock, padded steering wheel, day/night mirror, various lights, including cargo area, underhood, and map lights. Thayer ordered the truck without A/C but with an AM/FM radio (\$72). He also didn't order the tilt steering column but did order the \$134 power steering. The tinted glass was a \$17 option. A hand throttle was also ordered. Though the truck was cosmetically restored, the interior was untouched and is all original.



G The chassis is plenty beefy, with a full-float Dana 60 and a rear sway bar. This truck came with 3.73:1 cogs and a Powr-Lok rear (\$119). The rear sway bar was part of the Camper Special Package. The 7,700 GVW package was the highest you could get in a 4x4 for '74. Just the year before, a 10,000-pound GVW was available in a 1-ton 4x4, which had Dana 70 front and rear axles. Consolidation of the line eliminated it for '74.

wide (T-427) or close ratio (T-428) four-speed manuals and even a pair of five-speed manuals, one with an overdrive Fifth (T-494) and one a close-ratio box for towing (T-496) with a 1:1 Fifth. The automatic was Chrysler's TF727 Torqueflite (IH T-407), a new addition for International that replaced a BorgWarner unit. The standard transfer case was a single-speed chain drive (TC-143), with a \$54 NP205 (TC-142) as an option. The driving front axle was a Dana 44 with a 3,400-pound rating standard and 3,500-pound rating with the higher GVW packages. The rear axle was a Dana 60 full-floater in the 4x4 range with no alternatives.

The interior trim level varied from a bare bones, hose-out truck, to a nicely appointed Deluxe, to the plush Custom, which included carpets and nylon insert seats in four colors. Outside, the Deluxe exterior got you a little extra chrome and hubcaps with 17 color choices. The Custom exterior got you a two-tone paint scheme, with a choice of available two styles.

The truck you see here was bought new by the current owner, Tom Thayer, on March 15, 1974. It's a 7,700-pound GVW truck, the highest rating you could get in a 200 4x4,



G The V-345 two-barrel was a medium-duty engine in a light-duty wrapper. It was virtually the same long block as used in the medium duty binder, with changes in ancillary stuff. It included heavy-duty features like hard steel exhaust seats and Stellite exhaust valves, positive valve rotators, alloy intake valves, steel-backed tri-metal bearings, induction-hardened crankshaft, and steel top-ring piston inserts. Power was modest and rated at only 3,600 rpm, but IH V-8s were blessed with a long, broad torque band. Even if the 287 lb-ft peak number isn't all that impressive, the engine was making 220 lb-ft at 800 rpm, gave up the 287 lb-ft at 2,000 rpm but stayed above 200 lb-ft even at 4,000 rpm. The engine weighed 725 pounds dry. A four-barrel emissions version of the 345 was optional in the lighter GVW trucks.

with a Bonus Load bed and the Camper Special package. It was the Thayer daily driver until 1983, when his firm gave him a company car. From that point, it was used when a truck was needed, and in all that time, it has only acquired 118,000 miles.

Tom Thayer has an extensive collection of restored or mint-original IH Scouts and trucks, so a few years back he decided the old truck needed a little sprucing up. He sent it down to Scout Connection in Iowa, and they did a frame-off cosmetic restoration, though not much was needed mechanically and the interior was pristine. Now, the truck looks like the day he drove it home from Rich Truck Sales and Service way back in 1974, and it runs just as well too. **FW**

THE DETAILS

Vehicle: '74 International 200 4x4 Camper Special
Owner: Tom Thayer
Estimated value: \$25,000
Engine: 345ci two-barrel (IH V-345)
Power (hp): 156 @ 3,800
Torque (lb-ft): 287 @ 2,000
Bore & stroke (in): 3.875 x 3.656
Comp. ratio: 8.05:1
Transmission: 4-speed manual, IH T-428 (T-19A close ratio)
Transfer case: 2-speed, IH TC-142 (NP-205)
Front axle: IH FA-63 (Dana 44, 3,500 lbs)
Rear axle: IH RA-17 (Dana 60 FF, w/Powr-Lok)
Axle ratio: 3.73:1
Tires: 8.75-16.5, 10-ply
L x W x H (in): 202.8 x 77.6 x 73.8
Wheelbase (in): 132
GVW (lb): 7,700
Curb weight (lb): 4,340
Fuel capacity (gal): 16 x 2
Min. grd. clearance (in): 7.3
Approach angle (deg): 24
Departure angle (deg): 22
Ramp breakover (deg): N/A

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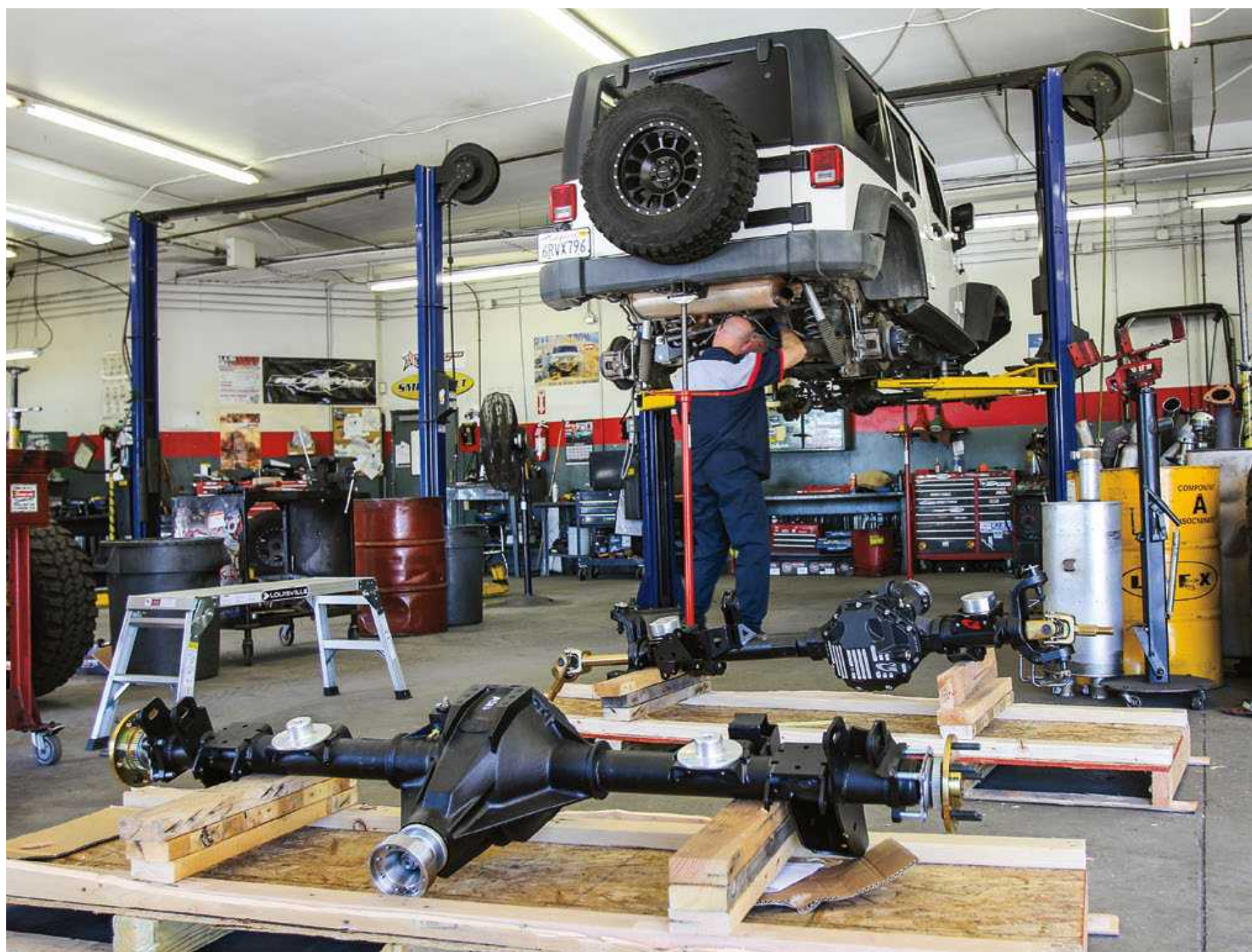
By **Christian Hazel** christian.hazel@fourwheeler.com Photography: Christian Hazel

WE COVERED THE BUILDUP OF A PAIR OF G2's new Core 44 axle assemblies for a JK Wrangler in the story, Hardcore Bolt-In JK Axles, June '15. Now it's time to find out what it takes to install them in a Wrangler. We dragged our '07 Wrangler Unlimited Rubicon project vehicle to our local 4 Wheel Parts in San Marcos, California, where ace technician Steve Chamberlain dotted every "i" and crossed every "t" to highlight the correct way to install a pair of crate axles in your Jeep Wrangler. Keep in mind, to lower cost to the consumer, G2 of-

fers its crate axles without steering knuckles, backing plates, or brakes. It's a very common practice, especially for crate axles designed for TJ and JK Wranglers. These factory parts are reused on the new axle assemblies, so installation isn't quite as simple as opening the crate, connecting your control arms, and hooking up your brake lines. Still, it is a relatively easy weekend job that the average enthusiast can complete in his or her driveway. So check out the tips, tricks, and correct way to plunk a pair of G2 Core 44s under your Jeep JK Wrangler.



CRATE CORE 44





1



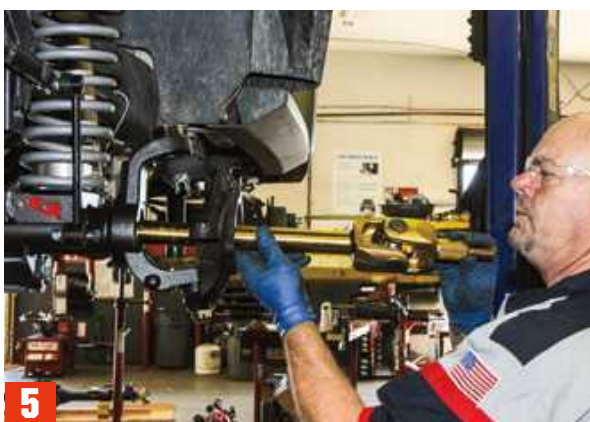
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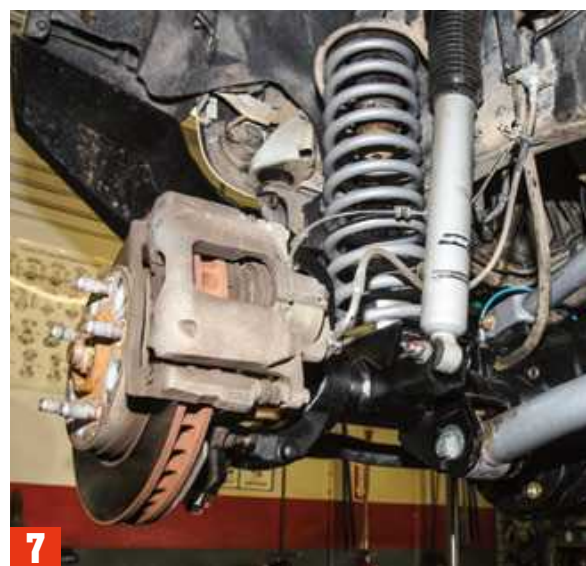
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8



6

1. After disconnecting the drag link, tie rod, steering stabilizer, and swaybar links, and hanging the calipers up and out of the way, Chamberlain removed the three unitbearing retaining bolts from the back of the steering knuckle and then the nut holding the stub shaft to the unitbearing. If you've purchased new unitbearings, you don't need to separate the stock stubs since the whole assembly can be removed at the same time. With the stubs loose in their bores Chamberlain removed the axleshaft and hub, set the unitbearing aside for installation with the new G2 'shafts, and then removed the cotter pins from the ball joint nuts and popped off the steering knuckles.

2. With the axle outers off, Chamberlain removed the front shocks and loosened the control arm and track bar bolts. You probably don't have a lift in your garage to lower the axle down on, but if you're doing this at home, a pair of floor jacks should be placed under the axle to support its weight before the control arm bolts are removed.

3. With the factory Dana 44 axle out of the way and promptly listed for sale, the new Core 44 can

be positioned under the vehicle. Line up the coil springs onto their retainers and raise the axle until you can line up the lower control arms with their mounts and insert the bolts. Then wrangle in the uppers. Don't cinch anything down until you have the suspension sitting on its tires under its own weight.

4. One more reminder before you compress the coil springs, make sure the end of the coil is firmly seated in the retaining bore. It's a lot easier to get it right the first time before the control arm or track bar bolts go in.

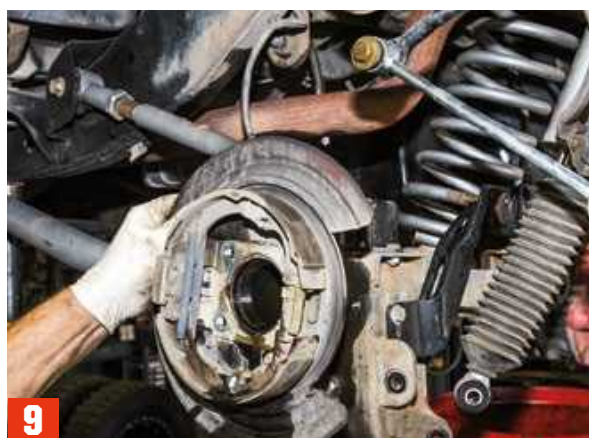
5. Chamberlain installed our shocks and then on went the steering knuckles. The chromoly G2 Placer Gold axleshafts were inserted being careful not to nick the inner axle seals and then the unitbearings go back on the factory knuckles. Apply some anti-seize lube to the three factory unitbearing bolts before torquing them down and then reinstall the rotors and calipers.

6. Chamberlain then turned his attention to our steering linkages. Since our vehicle was equipped

with a Rubicon Express long-arm suspension and Rubicon Express High Steer kit that places the drag link above the steering knuckle, our install was a bit different than a factory vehicle. In the end, we were able to utilize existing holes in the G2 Core 44 brackets to get our drag link and track bar angles parallel. If they're not parallel, you'll have bump-steer and other quirky handling issues.

7. Chamberlain reinstalled our rotors, calipers, driveshaft, and installed the air line for the front ARB Air Locker hung on our G2 5.13 gears. The G2 brackets are really beefy and position the shocks a tad more outboard for control arm clearance when flexing.

8. The factory axleshaft sometimes require a bit of force to remove. With the four backing plate nuts unfastened, Chamberlain flipped the brake rotors on the studs to fashion a makeshift slide hammer. A couple solid "thunks" and the axleshaft will pull out just enough to clear the seal from its bore.



9. With the rear axleshaft clear, the backing plate housing the e-brake assembly and caliper mount can be removed and set aside for use on the new Core 44 housing. Like the front, Chamberlain loosened the control arm and track bar bolts before setting the axle down on a cart. Again, if you're working at home a pair of hydraulic floor jacks work best to release the pressure on the mounting bolts. With the axle secure, the bolts can be removed and the factory axle moved out of place.

10. The rear Rubicon Dana 44 axle is a pretty good unit, but with bigger, 35-spline Placer Gold chromoly axleshafts, a beefier housing and axletubes, 5.13 gears, and an ARB Air Locker, our new G2 Core 44 is much better. The new Core 44 rear axle is positioned under the vehicle and wiggled around until the lower control arm bolts can be slipped in place. Again, leave the hardware loose until the vehicle is sitting on its own weight so the bushings aren't tweaked at ride height.

11. We won't walk you through every step because we cover this install in more depth online at fourwheeler.com, but the backing plates go on the Core 44 housing in the reverse order as they came off the factory housing followed by the rotors and calipers, e-brake cables, and all the other assorted hardware. Chamberlain then ran air lines for the rear ARB Air Locker and wrapped up the rest of the



install by bolting up the driveshaft, rotors, calipers, swaybar end links, and other odds and ends.

12. Our ARB Air Locker included switches for the lockers and compressor, but it's been our experience one of the best upgrades you can make to your JK Wrangler is a sPOD and Source System to control your electronic additions. In our case, we went with the standard six-switch system with red rockers so our night-time visibility wouldn't be impaired.

13. Chamberlain used a Synergy compressor mount designed specifically to mount the ARB Air Compressor in the tight confines of the JK's underhood area. It neatly positions the compressor on the vacuum reservoir master cylinder bolts.

14. The finished underhood installation is totally sanitary. Notice our air chuck on top of the ARB compressor for airing up tires in the field. The little ARB compressor may be tiny, but it packs a ton of performance with a 100 percent duty cycle. We used three of our six rockers on the sPOD for the ARB front and rear lockers and compressor, so that leaves three open circuits in the Source distribution box to add more electrical accessories like off-road lights. When the time comes, we can just wire 'em straight to the box in a few minutes.



15. Check out the paint pen on every mounting bolt. We can't say enough about the quality of Chamberlain's install job. Out in the bush our rear spring clang was gone and the 5.13s really help our 3.8L pull grades without incessantly downshifting. Also, notice the nice smooth radius on the bottom of the diff housing. No snags for rocks and other trail obstacles.

16. Chamberlain utilized the Rubicon Express rear track bar bracket that came with our Rubicon Express long-arm suspension. It worked perfectly with the G2 Core 44 brackets and fit the rear axletubes just fine. And best of all, the heavy-duty diff cover, housing, and most of the G2 Core 44 parts are made in the USA. We like that. **FW**

SOURCES

4 Wheel Parts
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SMALL- OR BIG-BLOCK

Q I have a '78 Silverado ¾-ton 4x4 Camper Special with an automatic transmission that originally came with a small-block 400. I am trying to decide between building a 383 stroker from a 350 four-bolt main that I have or putting in a big-block that I also have. It will be used as a hunting vehicle, snow vehicle, and farm rig. It won't see a whole lot of miles in a year. I would be very appreciative of any advice you could offer me to help in my decision.

TROY LANNING
VIA EMAIL

A The big-block GM V-8 engine is great for making a lot of torque down low. So it's perfect for an off-road or farm truck. Added weight is certainly a penalty to consider, which may not be an issue in your case. A cast-iron big-block will weigh about 110 pounds more than a cast-iron small-block. Fortunately, you can make up for the weight gain. If you install aluminum heads on the big-block, you can save about 70 pounds. A mini starter will shave another 14 pounds, and an aluminum water pump will save you 8 pounds. Of course there are other lightweight mods, but as you can imagine, they can get expensive. Ultimately, it's really going to come down to personal preference and how much money you are willing to put into the swap. Rebuilding a big-block will be more expensive than assembling a 383 small-block in most cases. If the big-block

is already a runner, the truck will require a few changes to make it all work. You'll need new heater hoses, radiator hoses, fan and spacers, transmission and throttle linkage, increased radiator capacity, fuel pump and lines, and a new exhaust system, among other things. The frame brackets will accept the big-block motor mounts. However, you may need to check for clearance around the firewall and fenderwells, depending on how other components are mounted under the hood.

All Chevy V-6 and V-8 engines use the same block-to-bellhousing bolt pattern used back to 1955. This includes Generation I, II, and III engines. Some Generation III engines have one hole in the block that hasn't been drilled and tapped. You can drill and tap this blank boss if maximum strength is required. The small-block front accessory group brackets and belts will not fit the big-block engine, but you should be able to reuse the accessories themselves, such as the alternator and power steering pump.

If fuel economy is an issue, the big-block will likely get 10 mpg or less. The small-block should return slightly better fuel economy depending on carb selection, tire size, gearing, overall weight, and driving habits.

EXHAUSTING

Q I'm working on a TTB Ford F-150. What would be the difference between running a set of shorty headers versus a set of equal-length shorty headers? Would the difference in price from standard shorty headers versus equal-length headers justify going with a set of long-tube headers? I realize packaging might be an issue, but if it wasn't, would you recommend going with a set of long-tube headers? Also, when selecting headers, what is better: ceramic or chrome coating? Which one is best for a truck that plays in the dirt and might occasionally encounter light mud?

AGUSTIN JIMENEZ
VIA EMAIL



A In most cases, equal-length long-tube headers are the best choice on any V-8 engine. They improve exhaust scavenging from each port. When using shorty equal-length headers, the packaging can become a nightmare. It's a tight fit in some cases, which can lead to melted plug wires. If long-tube headers are not available, go with the unequal-length shorty headers. This will simplify your installation and regular tune ups and won't adversely affect power output all that much.

Chrome headers may look cool on a show truck, but if you don't keep up with the maintenance on an off-road truck, the chrome will look terrible in no time. Headers with a ceramic coating are more ideal for a truck that sees dirt and mud use. You may also look into stainless steel headers. These will be significantly more expensive, but they will hold up to the elements with very little maintenance.

REPLACEMENT PILLARS

Q I recently rolled my '73 Jeep J-truck. What year A-pillars are interchangeable with my truck? Also, are FSJ Wagoneers and Cherokees the same too? Any info will be greatly appreciated!

DANIEL CHAVEZ
VIA FACEBOOK.COM/JOHNCAPPA4X4

A Replacing a rusted or crushed A-pillar on an FSJ can be a bodywork nightmare that opens up a whole Pandora's Box of other issues. The A-pillars have multiple layers that can make properly welding in a replacement difficult. They extend down into the cowl making replacement even more complicated. To remove and replace the entire A-pillar, you have to cut an access hole in the cowl or remove the entire cowl top. The FSJ A-pillars themselves all appear to be the same. If they are interchangeable or not will depend on how much of them you plan to use. The '80-and-older J-trucks have a brow in the roof over the windshield. So if you plan to replace part of the roof too, then you'll need an A-pillar from a J-truck with a brow. The Waggys and Cherokees never came with the brow over the windshield. I suspect that with careful cutting and welding, you should be able to make any FSJ A-pillar work, but it doesn't look like a fun task. It might be less work to swap the cab. If you are having difficulty finding wrecking yard body parts like the A-pillars, try Montana Overland (montanaoverland.com).

F-SERIES SHAFTED

Q I snapped the ears on the inner driver-side axleshaft on my '77 Ford F-150. Do you know of any replacements from other makes? I have access to a few FSJ and GM Dana 44s. Also, what would you recom-

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Pete Trassborg added an article on 04/23/13
Jeep Wrangler Sahara Edition: Fixing Your Suspension Issues Efficiently
Magazine: Pete Trassborg

Pete Trassborg added an article on 04/23/13
Project Long Range Clunker Part 5
Magazine: JP


MOST RECENT ARTICLES



1962 Willys - Short Bed A Vintage Adventure Willys
By Pete Trassborg June 2013
Has our boredom with cookie-cutter Jeeps gone too far? Look, we aren't and haven't been saying that if you find a build that works for your platform and intended usage, do

FEATURE | JP MAGAZINE


LIKES (3) COMMENTS (0)



1972 GMC 2500 Suburban - Sir 'Burban
By Ken Brubaker May 14, 2013
The Suburban, in production for a staggering 78 years, holds the record as the industry's longest-running model and the large GM SUV has stomped other would-be competitors who have come and went through the years.

FEATURE | FOUR WHEELER


LIKES (3) COMMENTS (0)



2014 Chevy Silverado High Country - All Classed Up
By Agustin Jimenez February 01, 2013
Chevrolet has just unveiled its sleek Silverado High Country model which will join the LTZ and Z71 models in the Silverado lineup this fall. We have to admit, we are

FEATURE | 4 WHEEL OFF-ROAD MAGAZINE


LIKES (3) COMMENTS (0)



Rigs To Remember
By Four Wheeler Staff February 01, 2013
It's always fun to reminisce and bench race about old rigs, trail tales, and seemingly impossible ideas that never quite came to be. Sometimes a quick glance in the proverbial rearview-mirror can remind us of things we've

FEATURE | FOUR WHEELER


LIKES (0) COMMENTS (0)



1975 Jeep CJ-5 - Apple Green A One-Of-A-Kind Classic
By Verne Simons April, 2013
There is no doubt that Jeep is an American icon. Almost anyone from just about any part of the world knows what a Jeep is, what it's good for, and what it looks like.

FEATURE | JP MAGAZINE

LIKES (0) COMMENTS (0)



2013 Pickup Truck Of The Year
By Ali Mansour February 01, 2013
For over 24 years we've put the latest 4x4 pickups available in our head-to-head battle that is Pickup Truck of the Year. To participate in the late-model truck showdown, the pickup has to be all-new or significantly

FEATURE | 4 WHEEL OFF-ROAD MAGAZINE

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mend as the best bang for the buck for a front traction-adding device? The truck sees more dirt and sand than pavement. I've tried asking a couple of my groups, but they're mostly full of stubborn purists who thought I was insane for even suggesting using GM outers and brakes for an 8-lug conversion on a Ford dentside ½-ton.

JOE WILLE
VIA FACEBOOK.COM/JOHNCAPPA4X4

A The good news is that the Dana 44 you are working with has lots of aftermarket support. The bad news is that your axleshafts are only interchangeable with a '68-'79 Ford F-100 and F-150 or '78-'79 Bronco. The long side inner axleshaft is 33.91 inches long (Spicer PN 27902-3X) and the short side inner axleshaft is 18.91 inches long (Spicer PN 27902-4X). The stub shaft is 9.72 inches (Spicer PN

620005). Summit Racing (summitracing.com) carries these parts as well as Spicer axleshafts for many other applications. Jeff's Bronco Graveyard (broncograveyard.com) offers OEM axleshafts, individual parts, and even complete axleshafts for your application. For the ultimate in axleshaft strength with a lifetime warranty,



you could swap in some RCV Performance (rcvperformance.com) CV-style axleshafts made from high-quality alloy steel.

Generally, I would recommend adding a traction-adding device to the rear axle before adding one to the front. The reason for this is because you typically need the locker most when climbing ledges and hills. As the truck noses up, the weight transfers to the rear axle, providing more potential for tire traction. If you already have a rear locker, then by far the best bang for the buck comes from adding a drop-in-style locker like a Powertrax (powertrax.com) Lock-Right or Yukon (yukongear.com) Spartan Locker to your front end. These types of lockers can be installed using common hand tools and don't require ring-and-pinion gear setup or adjustment. However, keep in mind that a front locker can cause more stress than an open differential on the front axleshafts. If you're already breaking axleshafts and U-joints with an open differential, you'll need to drive a little bit more sanely to keep the Dana 44 front end in one piece. The other option is to simply carry a lot of spares and get used to swapping out broken axle parts on the trail.

FSJ IDEAS

Q I'm currently planning and starting a '79 Cherokee Chief project. I was wondering if the buildup of your '66 Jeep Panel Delivery was in the archives at fourwheeler.com. If so, what name should I search? My money situation is better than what it was when you wrote these stories, so I am planning a little more sophisticated build than yours. I'm going to use a stroked Cadillac motor, a TH400 automatic transmission, an Advance Adapters four-speed Atlas transfer case, and Rock Monster bead-lock wheels. I have a Premier Power Welder, winches for the front and rear, and an on-board air system. A buddy is a body man, and he wants to chop the top and build M715-style fenders. I have another friend who will build a 'cage from front to rear.

If you were to build your Jeep again, what would you do different? Would you cut the roof

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off where you did, or all the way off and get rid of all the glass except the windshield? I am leaning toward cutting mine all the way off. My buddy, the body man, laid out what he would like to do. He said it won't be hard to cut out and reuse the rear 8 inches or so of the top to make that area look like it grew there. I was planning to have the 'cage cab-height all the way back, but now I am thinking about following the body lines so it looks like a Ford Bronco or Chevy Blazer without the top. Would you weld the 'cage in or bolt it in? I was also thinking about boat siding the rockers and replacing the body with a 2x8 rectangular tubing that would double as air tanks. These would be bolted to the frame and through the body to the cage.

STEVEN L MESSER
VIA FACEBOOK.COM/JOHNCAPPA4X4

A You can find most of my '66 Panel Hack FSJ stories online here: bit.ly/1QghDTu. If I were to do it again, I would probably do a better job of incorporating the 'cage into the body. The Jeep rattled a lot. Removing the top helped, but the simple rollbar I installed could have been attached to the body on the top and sides. A full 'cage attached this way would have been even better, similar to the way high-end prerunner 'cages are done.

Since I live in the Southwest, cutting off the top was no big deal. It's always warm around here. I would recommend leaving the metal over your head though. It's nice when it rains and the windshield needs some support. The A-pillars are kind of flimsy without a roof. I would weld the 'cage directly to the body with large 3/16-inch footings and 1/8-inch plates along the windshield frame and other areas. Remove the body bushings and install aluminum pucks in place of them. Then attach the 'cage to the frame in at least six points.

Boat siding is a cool idea, but it's a lot of work and you really won't gain all that much clearance. The FSJ floors are pretty tight. I'd also worry about losing some strength. That bottom section adds rigidity to the floor and the bottom of the door opening. You'll have to meticulously weld the rectangle tubes in place. I had good luck running tubular rocker guards made from DOM tubing. I beat back the pinch seam at the bottom of the body where the rocker guard legs passed. This kept the body structure intact and helped with ground clear-



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ance a little. The more you cut away, the weaker the body gets.

Turning the rocker guards into an air tank is a little scary, especially if you plan to take it up to 120psi or more. Rockers get beat up, and I'd hate to see them burst and injure someone. It's probably a better idea to simply invest in a high-output air compressor. There are many to choose from. Look for something that can

produce in the neighborhood of 3 cfm or better at 90 psi. With this kind of output you really won't need a tank to fill tires. If you plan to run air tools, the rocker guards really wouldn't provide enough air volume to run the tools for any length of time. I'd recommend a minimum tank size of about 5 gallons. This will allow the use of most air tools in short bursts. **FW**

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RANCHO

- Shocks sold separately		
4WD GM PU 2500HD	01-10 4"...	\$1,685 11-15 4".....\$1,849
4WD Dodge 1500	06-07 4"...	\$1,649 09-15 4".....\$1,699
Dodge 2500	09-10 4".....	\$1,122 10-14 4".....\$1,022
4WD Super Duty	08-10 4".....	\$1,308 11-15 4".....\$1,240
Wrangler 97-06 3".....	\$749	07-15 3".....\$640 4".....\$799

TUFF COUNTRY

- Shocks sold separately		
4WD GM 2500HD	11-15 6"...	\$2,172 01-10 4".....\$1,180
4WD GM 1500	07-13 4".....	\$694 14-15 4".....\$589
07-13 4WD Dodge 2500/3500	4.5"...	\$745 6".....\$831
09-14 Ram 1500	4"...	\$718 6".....from \$2,302 - \$2,339
4WD Ram	14-15 2500 3".....	\$346 13-15 3500 3".....\$308
4WD Dakota, Durango	5.5"...	\$1,308 to \$1,341
4WD Super Duty	05-07 6".....	\$1,196 08-15 6".....\$812
04-14 Nissan Titan	4".....	\$763
Tundra 99-06 4 5".....	from \$1,255	07-15 6".....\$1,875
Tacoma 6-lug	95-04 5".....	\$1,498 05-15 6".....\$1,299

REDTEK

- Shocks included		
03-08 4WD Dodge 25/3500	4.5"...	\$1,424 6".....\$1,454
10-13 4WD Dodge 25/3500	4.5"...	\$1,378 6".....\$1,455
05-15 4WD SuperDuty	4.5"...	\$1,120 6".....\$1,247

SUPERLIFT

- Shocks included		
73-87 4WD GM 4"...	\$399 6".....\$479 8".....\$819 12".....\$1,199	
07-13 Chevy, GMC 1500 pickup	6".....	\$1,199 8".....\$1,499
14-15 GM Pickup 1500 8" 2WD..	\$1,249	4WD.....\$1,399
88-10 Chevy, GMC 8-Lug	5"-7.5"...	\$1,199 to \$1,383
09-15 4WD Dodge 1500	4" & 6".....	\$1,499
Ram 2500 03-13 4".....	\$939 6".....\$999	14-15 4".....\$699
Ram 3500 03-12 4".....	\$939 6".....	\$999
98-10 4WD Ranger	3"-4".....	\$1,499
F150 4WD 97-08 4".....	\$1,399	09-14 6".....\$1,399
00-04 4WD F250, F350 4".....	\$855 6".....\$919 8".....\$1,104	
05-10 4WD F250, F350	4"...	\$749 6".....\$879
11-15 4WD F250, F350	4".....	\$766 6".....\$999
Wrangler 97-06 4".....	\$619	07-15 2.5".....\$349 4".....\$749

ROUGH COUNTRY

- Shocks included		
4WD GM 8-Lug	01-10 6"...	\$1,295 11-15 7.5".....\$1,399
14-15 GM Pickup 1500	3.5".....	\$479 5" & 7" \$1,199
07-13 4WD GM 1500 3.5"...	\$429	5" and 7.5".....\$999
99-06 4WD GM 1500 Non torsion drop	4" or 6".....	\$999
99-04 4WD Super Duty	4".....	\$809 6".....\$879
05-15 4WD Super Duty	4"-4.5".....	\$649 6".....\$799
F150 97-03 4"-5".....	\$999	04-08 4".....\$1,299 09-14.....\$999
12-14 4WD Ram 1500	4".....	\$1,249 6".....\$1,399
4WD Dodge 2500	03-13 5".....	\$699 14-15 5".....\$899
84-01 Cherokee XJ	3".....	\$255 4.5".....\$459 6.5".....\$899
97-06 Wrangler TJ	4".....	\$499 6" X-Series.....\$1,049
07-15 Wrangler JK	2.5".....	\$139 4".....\$499 6".....\$1,339
07-15 Tundra	4".....	\$1,249 6".....\$1,299
Titan 6".....	\$1,199	FJ Cruiser 3".....\$249 6".....\$1,279

FABTECH

- Shocks included		
11-15 4WD GM 2500/3500HD	4"...	\$1,204 6".....\$2,122
4WD GM 8-Lug	01-10 6".....	\$2,220 01-08 8".....\$3,233
07-15 2&4WD GM 1500	4".....	\$720 6" from \$1,599
2015 Colorado Coilover leveling kit	2".....	\$1,975
4WD Ram 2500 5" to 6" 2003-15	From \$1,260 to \$1,322	
4WD Ram 3500 5" to 6" 2003-15	From \$1,125 to \$1,322	
4WD F150	97-03 6".....	\$2,288 04-08 6".....\$2,311
F150 09-13 4".....	\$1,543 6".....	\$1,987 14-15 6".....\$1,699
08-15 4WD SuperDuty 4".....	\$857 6".....	\$1,204 8".....\$1,319
05-07 4WD SuperDuty 4".....	\$876 6".....	\$1,192 8".....\$1,378
07-15 Tundra 6".....	\$2,300	05-13 Tacoma 6".....\$2,097
Nissan Titan 6".....	\$1,804	Frontier 6".....\$2,188
Wrangler 97-06 4".....	\$1,178	07-15 3".....\$691 5".....\$1,762

VERCO

- with Bilstein shocks		
07-13 GM 1500 PU 6"	2WD...	\$1,949 4WD.....\$2,119
01-10 4WD GM 8-lug Pickup	6".....	\$1,968
F150 4WD 97-03 4-5".....	\$1,700	04-08 4-6".....\$2,699

SKYJACKER

- Shocks sold separately		
4WD GM 8-Lug	11-15 7".....	\$2,022 01-10 6".....\$1,763
4WD GM 1500 14-15	4".....	\$1,302 6"-7".....\$1,475
4WD GM PU 6-lug 99-06 6".....	\$1,573	07-13 6".....\$1,545
4WD Dodge 1500	09-11 4".....	\$1,663 12-15 4".....\$1,622
Ram 2500 03-13 3".....	\$567 5".....	\$1,361 14-15 4".....\$999
Ram 3500 03-12 3".....	\$567	13-15 4".....\$809 6".....\$999
F150 6" 97-03.....	\$1,772	04-08.....\$2,359 09-14.....\$1,405
2015 4WD F150 w/ shocks 4.5".....	\$1,405	6".....\$1,505
SuperDuty 08-10 4".....	\$842 6".....	\$974 11-15 6".....\$870
Tundra 99-06 3".....	\$364	07-15 4.5".....\$1,255 6".....\$1,305
97-06 Wrangler TJ 2.5".....	\$387 4".....	\$499 6".....\$1,900
07-15 JK Wrangler	4"-5".....	\$626 6"-7".....\$2,319

TRAXDA

- Shocks sold separately		
99-15 2&4WD IFS GM Pickup	1"-3".....	\$57 to \$140
Dodge 4WD 1500	02-05 2"-3".....	\$139 06-14 2".....\$129
14-15 Ram 2500	13-15 3500 2.5".....	\$230 3.5".....\$372
97-15 2&4WD F150	2"-3".....	\$110 to \$139
F250, F350	05-10 2.5".....	\$129 11-15 2.5".....\$149
Tacoma, Tundra 3".....	\$155	FJ Cruiser 3".....\$155

ZOE

- Shocks included		
GM 8-lug pickup	01-10 6"...	\$1,295 11-15 5".....\$1,399
GM 1500 4.5" & 6.5"	07-13.....	\$1,295 14-15.....\$1,195
12-15 4WD Dodge 1500	4"...	\$1,409 6".....\$1,519
09-11 4WD Dodge 1500	4".....	\$1,599 6".....\$1,699
Ram 2500 03-08.....	\$770	09-13.....\$1,127 14-15.....\$1,124
Ram 3500 03-08.....	\$770	09-12.....\$1,105 13-15.....\$874
4WD Ram 2500 03-13	3500 03-12	8".....\$1,329
F150 6" 97-03.....	\$1,295	04-08.....\$1,399 09-13.....\$1,549
F150 2014 6".....	\$1,299	2015 6".....\$1,349
Super Duty 99-04 4".....	\$809	05-15 4".....\$799 6".....\$1,379
97-06 Wrangler TJ	3".....	\$459 4".....\$529
07-15 Wrangler JK	3".....	\$439 4".....\$575 5".....\$1,299
07-15 Tundra 5".....	\$1,299	05-15 Tacoma 6".....\$1,249

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What: 26th Maine Mountains Jeep Jamboree
Where: Bethel, Maine
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Info: 530/333-4777, jeepjamboreeusa.com

October 1-3

What: 2nd Ozark Adventure Jeep Jamboree
Where: Ozark, Arkansas
Hosted by: Jeep Jamboree USA
Info: 530/333-4777, jeepjamboreeusa.com

October 3-4

What: VORRA Short Course racing
Where: Reno, Nevada
Hosted by: Valley Off Road Racing Association
Info: vorra.net

October 3-4

What: Lucas Oil Off-Road Expo
Where: Pomona, California
Hosted by: Family Events
Info: offroadexpo.com

October 8-10

What: 1st Uwharrie Jeep Jamboree
Where: Troy, North Carolina
Hosted by: Jeep Jamboree USA
Info: 530/333-4777, jeepjamboreeusa.com

October 9-10

What: Fawl Crawl
Where: Harlan, Kentucky
Hosted by: Mid-Atlantic Early Broncos
Info: earlybroncos.com

October 9-11

What: Bluewater Desert Challenge
Where: Parker, Arizona
Hosted by: Best in the Desert
Info: 702/457-5775, bitd.com

October 9-12

What: Death Valley Miner Cabins Tour
Where: Panamint Valley, California
Hosted by: Off-Road Safety Academy
Info: 909/844-2583, discoveroffroading.com

October 10

What: Advanced Off Road 201 Course
Where: Mapleton, Kansas
Hosted by: Kansas Rocks Recreation Park
Info: ksrockspark.com

October 10-11

What: Halloween Mud Bash
Where: Livermore, Maine
Hosted by: Barnyard All Terrain
Info: barnyardallterrain.com

October 15-17

What: 26th Ouachita Jeep Jamboree
Where: Hot Springs, Arkansas

Hosted by: Jeep Jamboree USA
Info: 530/333-4777, jeepjamboreeusa.com

October 16-17

What: Ultra4 Nitto Tire National Championships
Where: Reno, Nevada
Hosted by: Ultra4 Racing
Info: ultra4racing.com

October 16-17

What: Lake Superior Performance Rally
Where: Houghton, Michigan
Hosted by: Rally America
Info: rally-america.com

October 16-17

What: Operation Desert Fun
Where: Ocotillo Wells, California
Hosted by: California Association of 4WD Clubs, Inc.
Info: ca4wdc.com

October 17

What: 3rd Annual Crawling For A Cure
Where: Monson, Massachusetts
Hosted by: Crawling For A Cure
Info: crawlingforacure.org

October 17

What: Creepy Crawl Halloween Event
Where: Mapleton, Kansas
Hosted by: Kansas Rocks Recreation Park
Info: ksrockspark.com

October 17-18

What: Fall Crawl with the RCPFA
Where: Gore, Virginia
Hosted by: Big Dogs Offroad
Info: bigdogsoffroad.com

October 22-24

What: 22nd Gateway to the Cumberlands Jeep Jamboree
Where: Williamsburg, Kentucky
Hosted by: Jeep Jamboree USA
Info: 530/333-4777, jeepjamboreeusa.com

October 22-24

What: 17th Moab Jeep Jamboree
Where: Moab, Utah
Hosted by: Jeep Jamboree USA
Info: 530/333-4777, jeepjamboreeusa.com

October 22-25

What: Fall Brawl
Where: Perry, Florida
Hosted by: Trucks Gone Wild
Info: trucksgonewild.com

October 23-25

What: Riverwalk Place Jeep Creep 2015
Where: Gladwin, Michigan
Hosted by: Graff Motor Sales of Gladwin
Info: riverwalkplace.net

October 24

What: Getting Started Off-Road Driving
Where: Borrego Springs, California
Hosted by: Badlands Off-Road Adventures
Info: 310/613-5473, 4x4training.com

October 24-25

What: VORRA Short Course racing
Where: Rancho Cordova, California
Hosted by: Valley Off Road Racing Association
Info: vorra.net

October 24-25

What: Lucas Oil Off-Road Racing
Where: Lake Elsinore, California
Hosted by: Lucas Oil
Info: lucasoiloffroad.com

October 24-25

What: 4WD Beginner "Discovery Course"
Where: Rancho Cordova, California
Hosted by: Off-Road Safety Academy
Info: 909/844-2583, discoveroffroading.com

October 25

What: Day 2 Getting Started Off-Road Driving
Where: Borrego Springs, California
Hosted by: Badlands Off-Road Adventures
Info: 310/613-5473, 4x4training.com

October 29-31

What: 6th Cullman Alabama Jeep Jamboree
Where: Cullman, Alabama
Hosted by: Jeep Jamboree USA
Info: 530/333-4777, jeepjamboreeusa.com

October 31

What: Big Dogs at Tomahawk MX Park
Where: Hedgesville, West Virginia
Hosted by: Big Dogs Offroad
Info: bigdogsoffroad.com

October 31

What: Wheelin' For St. Jude
Where: Jadwin, Missouri
Hosted by: Ozark Mountain Xtreme Rock Crawlers
Info: 417/293-5956 **FW**

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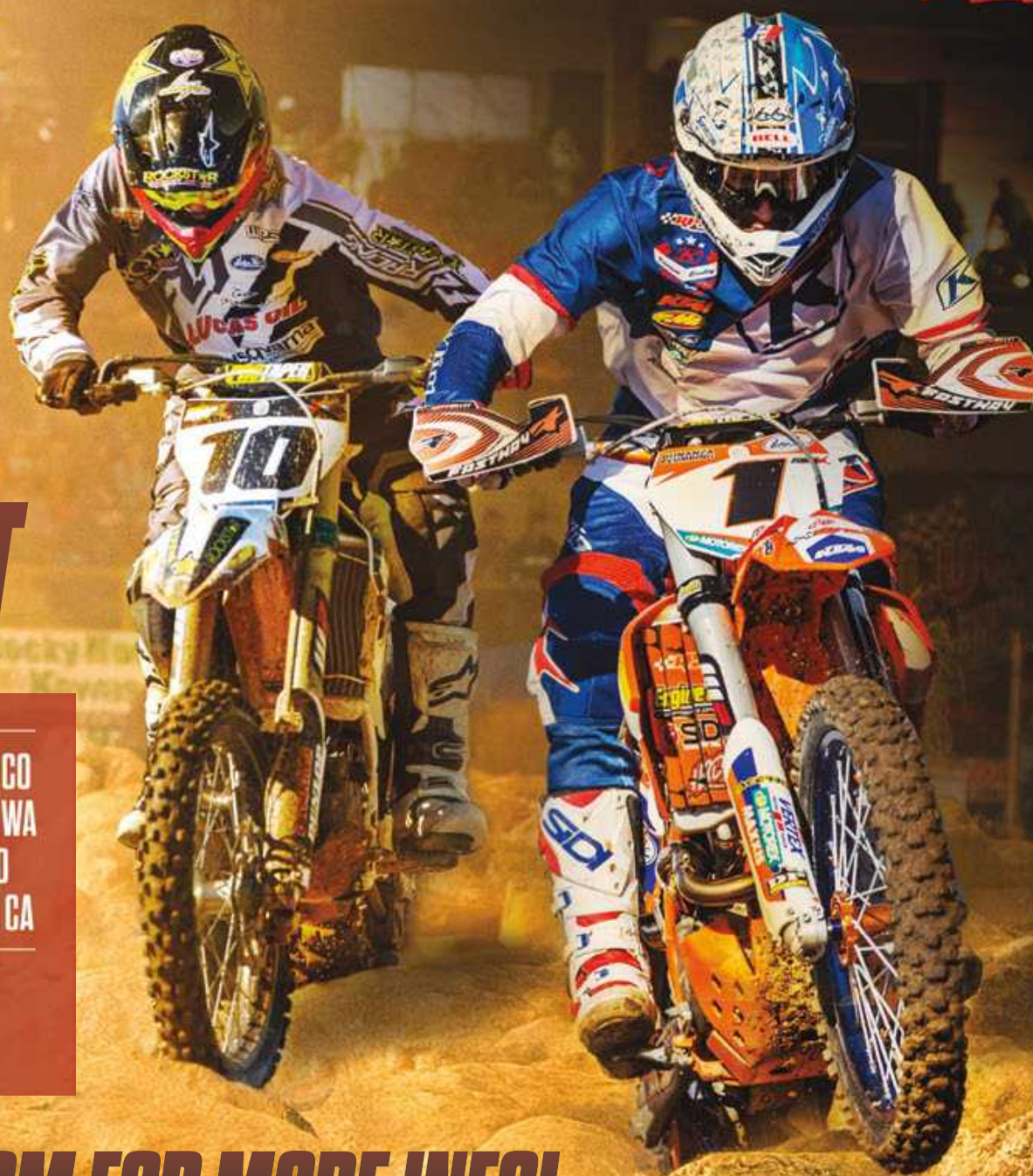
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10 Years In And Our Power Wagon Still Rocks

October 2015 marks 10 years since we published the first installment of our long-term test of the '05 Dodge Power Wagon. Little did we know at the time, our 2005 Four Wheeler Pickup Truck of the Year-winning vehicle would become a permanent part of our *Four Wheeler* fleet of vehicles and remain there to this day.

When the Ram 2500-based Power Wagon was introduced, there was nothing like it in the fullsize truck world. Some of its factory-standard features included electronic locking front and rear differentials, larger diameter rear axleshafts in the 10½-inch AAM axlehousing, electronic disconnecting front antiroll bar, revised springs that created more lift but were softer to enhance axle articulation, longer and higher pressure Bilstein shocks, Alcoa forged aluminum wheels with special modified bead seats, 33-inch tires, significant underbody protection, rocker protection, special calibration for the engine and transmission, and a 12,000-pound-capacity winch.

After the Power Wagon won Pickup Truck of the Year, Chrysler gave us a long-term test

vehicle for one year. One of the very first things we did after taking delivery of the truck was to point it to Moab, Utah, for the 2005 Easter Jeep Safari. We flogged the truck on trails like Hell's Revenge (including Hell's Gate) and the Flat Iron Mesa trail. After the event, a snowstorm hit Utah on the way back to California and the truck's Warn winch was put to work rescuing stranded vehicles on I-70.

When the year was up we liked the truck so much we asked Chrysler if we could purchase it. The company said yes. Over the next several years the truck spent most of its time based in either California or Illinois and made the trip between the Midwest and West

➔ **"WHEN THE RAM 2500-BASED POWER WAGON WAS INTRODUCED, THERE WAS NOTHING LIKE IT IN THE FULLSIZE TRUCK WORLD."**

Coast often. While in California, staff borrowed the truck if they had to tow something or as an on-the-move office when covering events such as King of the Hammers. While in Illinois, it wheeled farmland, served as a photo support vehicle, and even towed fifth-wheel trailers while testing products for special towing stories. Along the way, the rig was modified with things such as a front leveling kit and 35s. It was also used as a testbed for various aftermarket bolt-ons.

So what is the truck doing nowadays? Well, it's based in Illinois and is still used to test products. It has about 80,000 miles on the ticker and sees a fair amount of off-road travel in the "sticks." We've recently installed the Dynatrac Free-Spin kit, Dynatrac Heavy-Duty BallJoints, and Dynaloc locking hubs. The truck is currently running 33-inch Cooper S/T MAXX tires on the factory forged wheels, and the truck is fit with Bilstein remote-reservoir shocks.

We've tried to keep the truck out of the Midwest winter road salt, and so far, it has no visible rust. It has a leaking sunroof (currently sealed with duct tape), a leaking roof-light seal (gotta remember to get the upgraded seal kit), and small front axle pinion seal leak. Just the other day, the driver-side grab handle on the A-pillar came off in our hand (long bolts with washers solved the problem until we can replace it properly). About a year ago the electric lock mechanism on the driver-side front door failed and had to be replaced, but overall, the truck has been outstandingly reliable and has never failed us. We've always been sticklers for maintenance, and it has paid off with zero failures. The 5.7L Hemi runs great, and the transmission, T-case, and axles are good to go. On our soon-to-do list is a steering upgrade and to install full perimeter lighting.

So, 10 years in, we're pleased to report that our '05 Power Wagon continues to be a great truck. Not only is it an animal off-road, it's also still a darn nice and comfortable truck for daily commuting. Keep an eye out for more tech and updates on this amazing truck. **FW**



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